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Fire Apparatus and Street Pavements

WE have referred several times to the various objections to tearing up of city pavements, but there is one quite serious one which we believe has not been previously referred to in these columns, and that is in connection with the Fire Department. The ordinary vehicle merely suffers the loss of a few moments of time if compelled to slow down in passing a bad pavement, and a physician's carriage is seldom compelled to maintain high speed over it; but fire apparatus must always be driven at the utmost possible speed, and is, therefore, peculiarly affected by holes or trenches in the street paving, which render this speed dangerous. Moreover, the weight of most fire apparatus is greater than that of any other vehicle which does, or would be permitted to travel at high speed through the streets, and is, consequently, more difficult to stop or guide past obstructions. An impassable section of pavement, therefore, endangers the lives of the firemen and horses which are compelled to pass over them in the performance of their duty. Some slowing down is usually effected, however, and in many cases a detour is made to avoid a bad piece of paving, and the delay caused by these may mean the loss of large sums of money to the citizens, as it is well known that the first minutes of a fire are usually the most critical as concerns its extinction. These considerations certainly furnish additional reasons why firemen and all other citizens are highly interested in the maintenance of street paving.

Park Maintenance

THE Chief Gardener of the city of Paris, Mr. Vacherot, is spending some time in this country visiting the various park systems, and, like most foreigners of any distinction, has been pressed to give his views concerning what he has seen and learned in our various cities. In comparing these with his own city from the point of view of a gardener, the comparison can hardly be favorable to the United States. Mr. Vacherot does not dwell too much upon this point, however, but has, in a few interviews, pointed out some ways in which he thinks our cities may improve upon their present methods; and even this he does chiefly by stating what has been found successful abroad rather than what lack of success he has observed in this country. The city of Paris spends nearly $2,500,000 annually upon its parks and shade trees, and largely as a result of this is universally regarded as the City Beautiful of the World. Washington offers the nearest approach of any city in this country to the wide boulevards and shade trees of Paris. In the latter city the trees are carefully watched and tended, trimmed and trained and guarded as carefully as garden flowers would be. The grass also is constantly attended to, but no attempt is made to maintain it in impossible places such as those which are constantly walked over by crowds of people, such a location being the Tuileries Gardens, a large part of which is covered with gravel or pebbles; but these are kept raked to a smooth surface and clean of papers or any other litter. On the other hand, the Champs Elysees for miles stretches out as a park of marvelously fresh verdure, the secret of which is the bountiful use of water on grass, trees and flower beds, hose being constantly in use along the entire stretch. Fertilizer also is used to keep the soil from becoming exhausted. In contrast to this, in this country, in Fairmount Park, and still more notably in Central Park, the soil is already barren, many trees are dying, and there is dry, bare earth where green grass should be found. The new Commissioner of New York's Parks has recently recommended that red clover be grown over a considerable part of Central Park and plowed under for the enriching of the soil; but several years of this and similar efforts will be necessary before the effects of the almost criminal negligence of the last quarter of a century can be removed. Similar conditions may be found

in many parks, and these experiences, enforced by the advice of Mr. Vacherot, should lead our cities to realize that their duty towards city beauty does not end with the creation of a park system, or the planting of shade trees, but that an intelligent and thoroughly efficient maintenance of these is as necessary as in connection with a pumping plant or any other city utility.

GARBAGE DISPOSAL AT ST. LOUIS

As is the case with all cities, and especially large ones, previous to the adoption of a modern method of garbage disposal, the problem of disposing of this material has for some time been assuming serious proportions in St. Louis, Mo. For several years it has been fed to the hogs on Chelsey Island, south of the city, the odor from which has been offensive to the residents and travelers on the river for miles around. During the past three years efforts have been made by the Board of Public Improvements and other citizens of St. Louis to obtain through Council a contract for some other method of disposal, and Council has just passed an ordinance under which the Board of Public Improvements is to contract for the reduction of the garbage for a term of years, ending September 1, 1918. The garbage is to be collected by the city, as is now being done, and this part at least of the present disposal seems to be worthy of continuance. The city garbage wagons are washed with hot water at the close of each day's work, and are kept as clean as possible while in use, and it is said that no odor is given off from the wagons, even when passing through the cities loaded. The cost of collection has ranged from $84,000 to $195,000 a year for the past seven years. The cost of disposal during the same period has ranged from $62,000 to $129,000. This cost includes the disposal of dead animals, of which thousands are collected each year. Under the contemplated arrangement these will be rendered by the city, as at present, the garbage only being let out by contract.

Some time ago, when this matter was first seriously brought up in Council, the latter considered sending a committee to visit various cities where garbage disposal plants were in operation, at an expense of $2,500, but the opposition of the press and the Mayor caused this idea to be abandoned. This, we think, was a wise conclusion, for reasons which we have before stated in these columns; and we hope that further wisdom will be shown by the engagement of an unbiased expert to interpret for the city the various propositions which will be received, and advise as to their comparative desirability. The sum which it had been intended to appropriate for a "junketing trip" would undoubtedly procure much more valuable information for the city if expended in this way.

The plant is to be one for reduction. The plans and detailed specifications of the machinery and all other appurtenances in connection with the plant, the receiving stations and the transportation are to accompany each bid, together with such other data and information as will enable the Board to determine whether the bidder can properly comply with the contract. The contract is to be for approximately ten years, as it seems probable that the operation may begin by September 1 of next year. The city reserves the right to purchase the plant, receiving stations and any or all of the appurtenances used in receiving and reducing the garbage, and the rights and contracts to operate them.

The receiving stations are to be maintained in a strictly sanitary condition, free from offensive or disagreeable odors. They are to be provided with suitable approaches, having an inclination not greater than one in twenty, and with hoppers into which the garbage can be expeditiously unloaded; the contractor to maintain the stations. Each of the two stations is to have a capacity to receive 300 tons of garbage in eight hours each day. Their approximate locations are indicated in the specifications. All material delivered by the city is to be removed to the reduction plant before midnight of the same day. The reduction plant is to be built on an area of not less than five acres, convenient to the Mississippi River or a railroad leading from St. Louis, and not less than one mile outside the city limits. The buildings are to be of stone, brick, steel or reinforced concrete, practically fireproof and above flood line.

Garbage, which the contractor is to dispose of, is defined as "all organic matter and small dead animals, and all other refuse of vegetable or animal food stuffs, collected by the city garbage collection wagons, and which may contain some foreign substances."

All refuse or incombustible materials not of vegetable or animal origin, separated from the garbage by the contractor at the plant, is to be disposed of by the city if rejected by the contractor, for which material no payment will be made to or received from the contractor. The garbage is to be weighed by the city before being deposited in the receiving station. The method of reduction to be employed is, unwisely in our opinion, restricted by the provision that "hydrocarbon solvents shall not be used in the process of reduction of said garbage matter, and no process shall be used that is not continuous and does not confine the garbage from exposure to the air from the time the garbage is placed in the conveyor until it is completely and finally reduced; nor shall the products of handling or disposing of the garbage be productive of offensive odors." It may be said that, since the city is possibly to purchase this plant, it is perfectly proper that it should specify beforehand any of its essential features which it may desire to. But the exclusion of hydrocarbon solvents and the provision for continuous treatment would exclude bids from certain companies. Even though those who have this matter in charge may, from their investigations, have concluded the processes which they have excluded possesses undesirable features, such information could be used as well after bids were received as before, and it cannot be certainly known beforehand that these clauses might not exclude other processes, unknown at present to the authorities, which might otherwise have met with their approval. We believe the better plan in all such applications is to carefully define the results to be obtained—in this case presumably disposal without creating a nuisance—and then use such knowledge and judgment as is available in determining which of the various propositions is most likely to meet these requirements.

MOTOR CARS FOR MUNICIPAL WORK

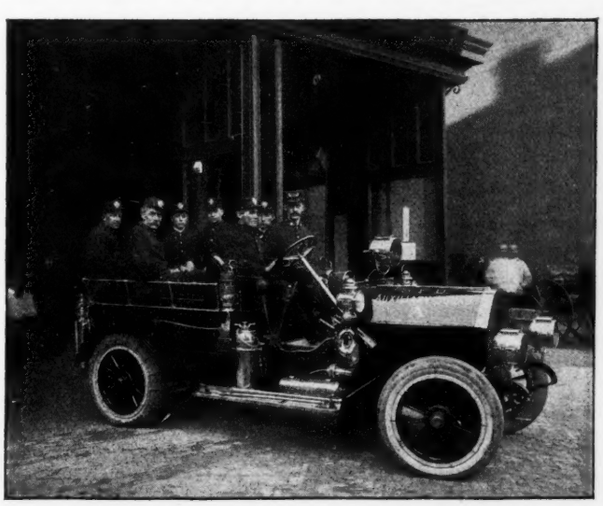
Gasoline, Electric and Steam Motors for Fire Apparatus—Street Sprinklers and Sweepers—Refuse Wagons—Police Patrol and Ambulance—Runabouts for Street Departments

By HARRY W. PERRY

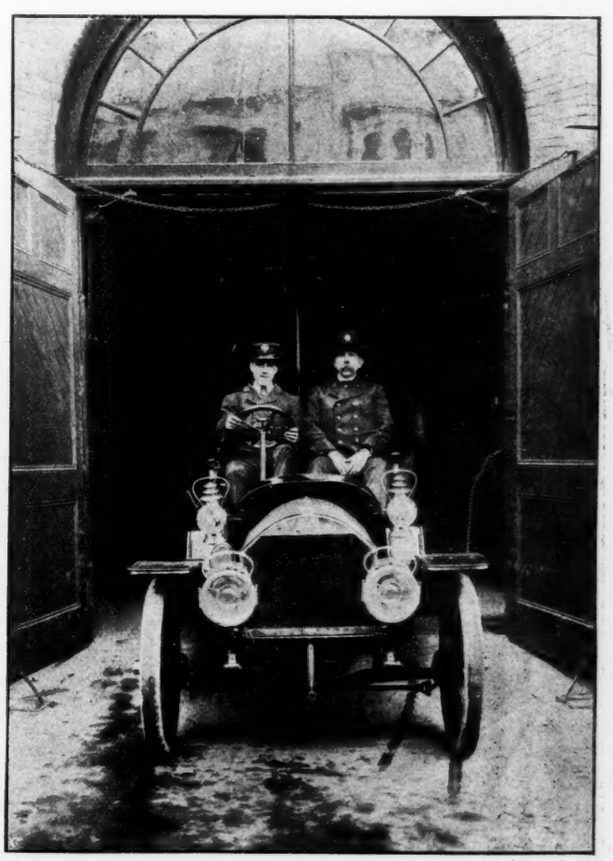
THERE is hardly any kind of city work for which vehicles are required that is not now being done somewhere in the world by self-propelled vehicles. Many of these are designed and built for special purposes. There are automobile street sweepers and sprinkling carts, road rollers, patrol wagons, ambulances, fire engines and hose and chemical carts, dog catchers' wagons, covered refuse wagons and dump carts, and other forms of motor-driven machines built to take the place of horse-drawn vehicles that have long been used for special service in large cities. Few of these have come into general use by the municipalities as yet, but they are being introduced here and there in Europe and America, and as they prove successful and economical they will be adopted more widely, so that in time we may expect to see a large part of the public work in the great cities done by self-propelled vehicles.

As might be expected, the most extensive use of automobiles is being made by departments in which the regular forms of runabouts and touring cars can be employed. It is easier to obtain these from the manufacturers or at second hand and they cost much less than special types of work vehicles. Moreover, the use of motor cars has up to the present been of an experimental nature and large appropriations could not be obtained or were secured with difficulty. Again, it has been easier to get appropriations for automobiles that were to be used by the heads of departments in their own particular work than for motor wagons to be used by employees for hauling garbage and sprinkling and sweeping the streets. As a consequence, the largest number of municipal automobiles are used by fire chiefs and commissioners of the departments of police, street cleaning, health and parks. Next in number are the police patrol wagons and ambulances. Almost every city of importance in the North has bought an automobile for the chief of its fire department, or is now considering such a purchase; and a number of larger cities have provided the deputy fire chiefs with them as well. These machines are of a great variety of kinds and sizes, from the motor bicycle used by the fire chief of Salt Lake City and the light two-passenger steam runabout recently bought by Trenton for Fire Chief Allen, to the fast electric deputies' wagons and the huge, crimson, 60-mile-an-hour touring car of Chief Croker, now in use in New York.

More automobiles are owned and used in official business by New York than by any other city in America. It owns in the neighborhood of thirty machines, the municipal corporation being one of the largest users of motor vehicles in the city. These vehicles are assigned to the presidents of the several boroughs, to the Commissioner of Street Cleaning and his staff, the Chief of the Fire Department and his deputies, the President of the Board of Health and the city hospitals, the Commissioner of Parks,



SPRINGFIELD, MASS., FIRE DEPARTMENT 35-H.P. KNOX. CARRIES EIGHT MEN. TWO OF THESE IN USE



COLUMBIA GASOLINE RUNABOUT, 24-H.P. CHIEF NICHOLAS BALL, OF OAKLAND, CAL., FIRE DEPARTMENT

the Superintendent of Docks and the assistant superintendent, the engineers of the Department of Public Works and the Commissioner of Police. Mayor McClellan owns his own car. Several motor cycles are used by special policemen assigned to the duty of suppressing reckless driving. Many of the automobiles now in use are old, second-hand machines that are proving anything but economical investments, but these are gradually being replaced by newer ones, and from time to time additional machines are bought, so that it is expected that the city will soon own half a hundred automobiles.

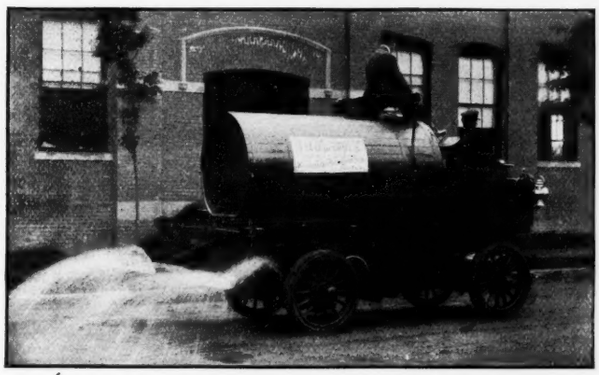
No automobile patrol wagons have yet been put in service in New York, and while several of the private hospitals have been using electric ambulances for several years, the city has been slow in the matter of adopting them for the Health Department. During the last week in July, however, it advertised for bids for two. The metropolis is far behind many other cities in the matter of automobile fire-fighting apparatus, watering carts and street sweepers.

Hartford, Conn., has had a huge self-propelled steam fire engine called "Jumbo" in continuous service for more than two decades, and Boston bought a similar engine in 1872 that was used for a number of years. Two new steam-propelled engines were bought by the Hub in 1897 and 1898 and are now stationed in the shopping district. These are too heavy to be drawn by horses and are not fast, but they throw powerful streams of water that are very effective in bad fires. New Orleans has had a steam-driven fire engine for many years and Newark bought a new one only last spring.

Within the last year or two a new type of automobile fire-fighting apparatus has been evolved. This is intended particularly to put out a fire in its incipient stages before it has gained such headway as to require large volumes of water. The machine has the general appearance of a powerful touring car. The rear portion of the body has seats for carrying four or five men besides the driver and another man on the front seat. There are also one or two large tanks charged with fire-extinguishing chemicals, with several hundred feet of hose attached, a number of hand grenades, tarpaulins, and pikes, axes, scaling ladders, and other fire-fighting implements. Such wagons are propelled by gasoline motors instead of by steam engines. They are strong and powerful and can be driven at a high rate of speed. They have been adopted with success in Springfield and Boston, Mass., and Hartford, Conn., and are being tried in a number of other cities, mainly in the North Atlantic States. The largest equipment is in Springfield, where the city Fire Department maintains four. With them a score of firemen can be brought to the scene of a fire and the fire often put out with the chemicals or got under control before the arrival of the apparatus drawn by horses.

America has not yet begun to adopt the motor fire ladder carts and other elaborate equipment in which the cities of Berlin, Hanover and Paris excel, but several inventors and manufacturers are known to be at work

HARTFORD, CONN., FIRE ENGINE NO. 4 RESPONDING TO AN ALARM



GASOLINE SPRINKLER USED IN BOSTON PARKS. THREE-TON ATLAS TRUCK

FRENCH MOTOR STREET SWEEPER

on such apparatus on this side and it is likely to make its appearance within a year. For several months the Bureau of Manufacture of the Department of Commerce and Labor has been investigating the use of such apparatus in foreign countries.

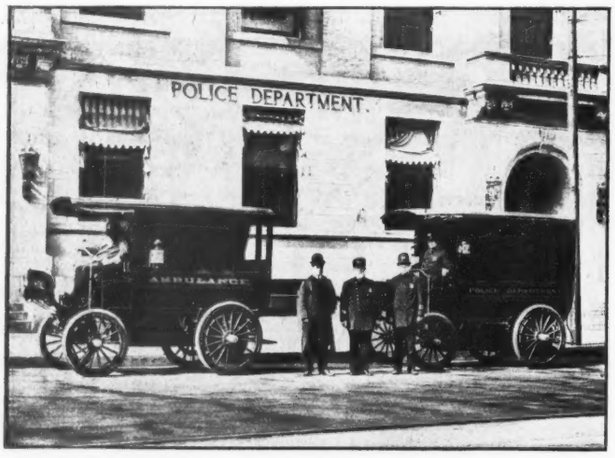
A motor sprinkling cart has been in use in the Revere Beach Park Reservation, Boston, for more than a year, and as a result of the success that has been had with it, a street sprinkling company in Worcester, Mass., recently ordered seven similar machines. A cylindrical wooden water tank of large capacity is mounted on the running gear of a three-ton motor truck driven by a gasoline engine. When the filling is done at a large supply pipe, one of these machines will do the work of three or four horse-drawn watering carts. It distributes the water through two large sprinklers at the rear over a surface thirty to thirty-five feet wide. The cart will run from 100 to 150 miles with one filling of the gasoline tanks.

Another form of sprinkling wagon is used in Paris. It has a rectangular metal tank that holds 5,000 liters (five tons) of water and two sprinklers at the rear that throw the water half the width of the Avenue du Bois de Boulogne, or twenty-five feet. Approximately half a liter (about a pint) of water is used to each square yard of pavement. The avenue is about 3,700 feet long, and this machine, which is run at a normal rate of six miles an hour, can sprinkle half the full length of the avenue in a single trip up one side and down the other from the filling stand half way of the length of the avenue. The total weight of this massive vehicle when filled with water

HARTFORD, CONN., COMBINATION CHEMICAL ENGINE AND HOSE WAGON. KNOX GASOLINE MOTOR

is more than twelve tons. In order that so expensive a vehicle may not stand idle through the winter and spring months, it is so built that the tank can be removed and a sheet steel body secured in its place for the reception of dust and refuse swept up from the streets. This convertible feature reduces the cost of sprinkling to about $6 a day, which is cheaper than it can be done by the old method, and at the same time provides a cheap and satisfactory way of removing refuse. Several similar machines are in use on the other avenues of the French Capital.

Automobile street sweepers are in use in Paris and Berlin. These are propelled by gasoline engines and have a steel water tank like the sprinkling wagons and a cylindrical rotary brush suspended below between the two pairs of wheels. Fine streams of water are directed onto the pavement just in front of the brush by a perforated pipe connected with the tank and fitted with a valve operated by the driver's foot. The machine can also be used



HARTFORD, CONN., POLICE PATROL AND AMBULANCE, COLUMBIA ELECTRIC

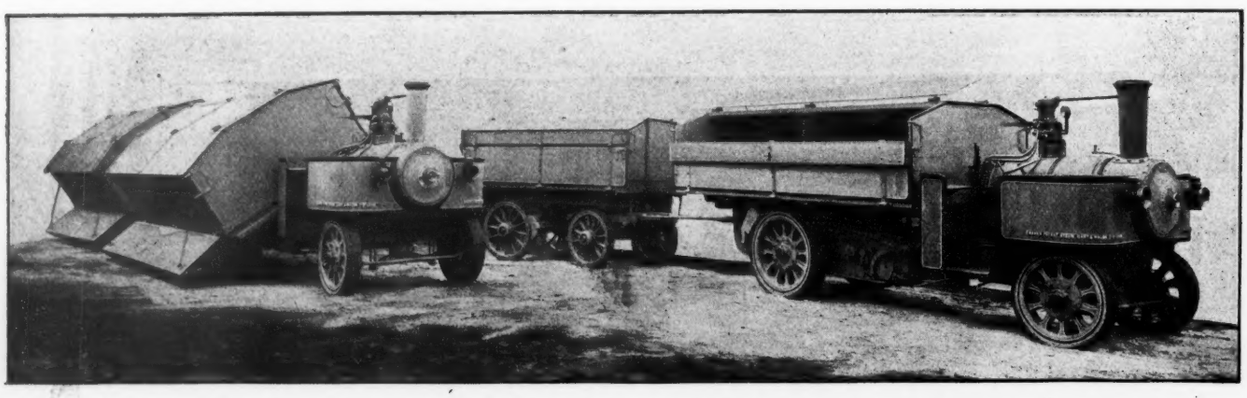
for sprinkling the streets and for spreading sand on slippery pavements.

Stray dogs are collected by automobile in New York and Paris. Not all of the dog catchers are provided with such up-to-date means for facilitating their work, but several motor cars fitted with special bodies to contain the animals are in use.

Motor police patrol wagons that are quickly convertible into ambulances are being adopted very generally by the cities of the Northern United States. Probably a score or more communities that have adopted them could be named. In some cities, such as Hartford, Conn., and Akron, O., electric patrol wagons have been in use for eight or ten years, but their introduction has been slow up to within a year or so. Now there is much activity in this direction and many cities have bought the latest models of electric and gasoline police wagons. Among these cities can be named off-hand Los Angeles and Rochester, which now have three each, Akron, Sacramento, Richmond, Va., Oakland, Cal., and Brookline, Mass. In many other cities the chiefs of police have strongly recommended the purchase of such vehicles.

The Chicago Public Library has used motor vehicles

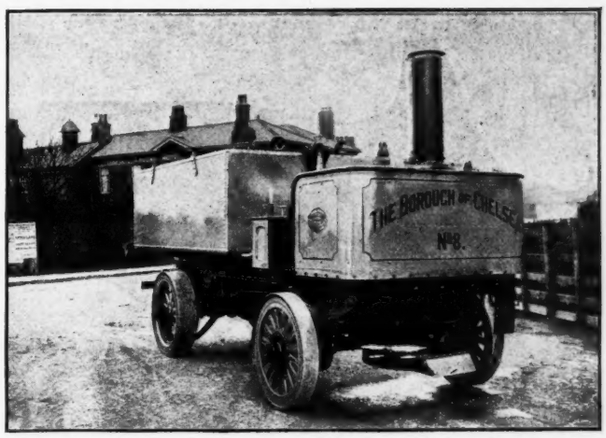
GLASGOW'S MUNICIPAL GASOLINE TROLLEY TOWER REPAIR WAGON



STEAM DUMP WAGONS, USED AT CHELSEA AND LIVERPOOL, ENGLAND, FOR STREET WORK AND REFUSE COLLECTION

for several years in delivering books to the circulating branches of the library in different parts of the city. Four 2,500-pound machines in use last year did the work of seven wagons and twenty-one horses. Careful records have been kept of the cost of operation and maintenance, and with the estimated depreciation figured at 15 per cent., the annual total cost has been found to be $7,980 for the four vehicles. The total cost of operating the wagons and horses that would be required to do the same work would be $10,395. Although the first cost of the automobiles was $10,000 as compared with only $4,900 for horses, wagons and harness, it is estimated that a saving of $4,500 would be effected in four years by the use of the motor trucks, first cost and interest and depreciation being figured in both cases. A fifth machine was purchased this year.

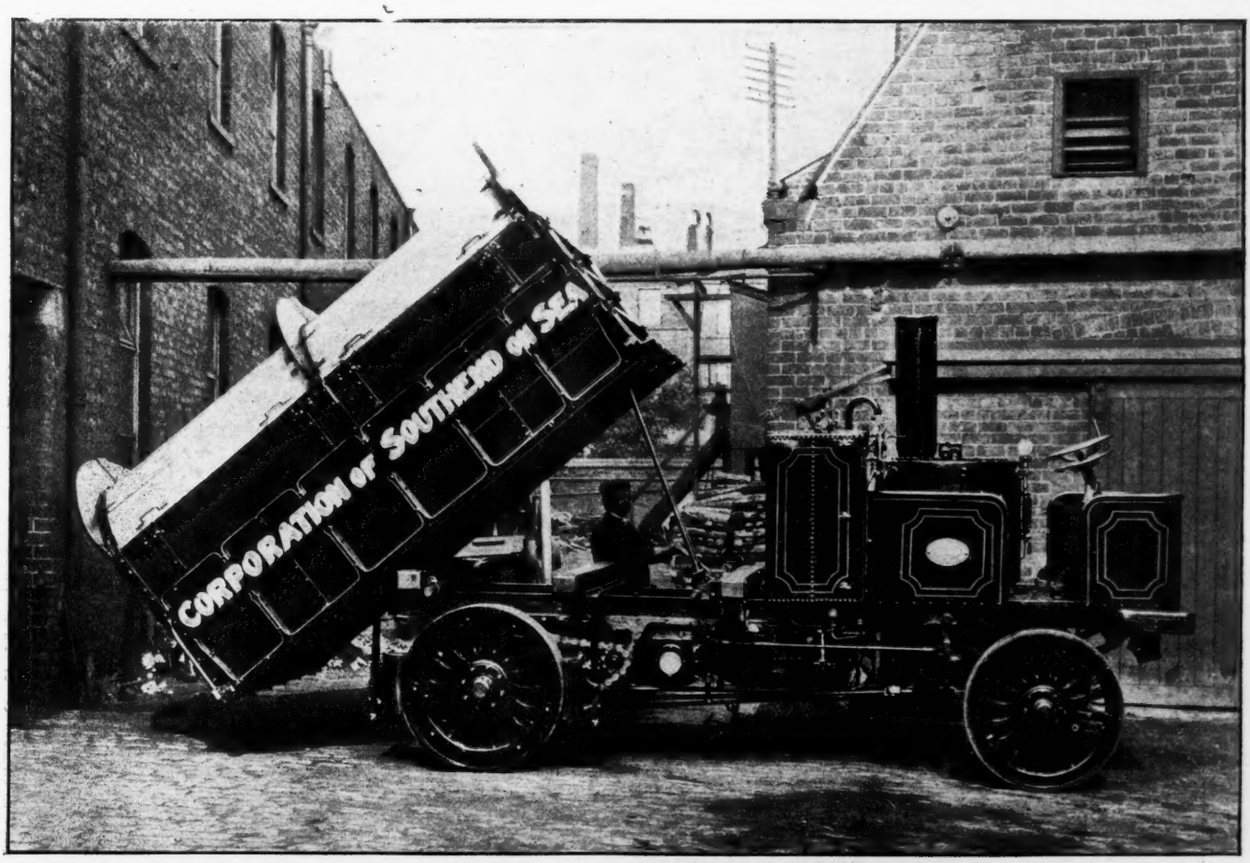
FRENCH REFUSE COLLECTING MOTOR WAGON



ENGLISH STEAM WAGON. REFUSE AND WATER TANK BODIES INTERCHANGEABLE.

In June the Cook County Hospital, located in Chicago, received a new motor ambulance equipped with everything necessary for emergency cases.

England is foremost in the use of heavy motor wagons in municipal work. Glasgow, Scotland, has three tower wagons that are used for erecting and repairing the overhead trolley lines of its municipally owned tramways. These are driven by 15-horsepower gasoline engines and have extension towers built at the rear of the body. Liverpool and Chelsea each own seven heavy steam-propelled wagons, some of which have been in use since 1898. They



ENGLISH MUNICIPAL REFUSE WAGON

are used mainly in the collection of refuse, street sprinkling and the hauling of crushed stone and similar materials for the repairing of streets. These wagons have a carrying capacity of 4½ tons each and can also haul a trailer carrying 2½ tons. The bodies are interchangeable and tip either to the side or the rear. To secure the greatest economy the Liverpool wagons are operated up to their full capacity, twenty hours a day, with two shifts of men. Each wagon covers about 100 miles a week and the total annual cost of operation amounts to about $2,000 per wagon. It is estimated that there is a saving of 15 per cent. over the cost of doing the same work with horses and wagons.

The Tramway Department of the Corporation of Bradford maintains a regular parcels delivery service from the ends of the street car lines with six small gasoline cars fitted with van bodies.

Returning to America, we find that a novel use of motor cycles is being made in Los Angeles as an experiment. The machines are kept at the central station to be used in answering telephone messages requiring the quick presence of an officer. In the case of a burglary, murder or assault, one or two policemen can reach the scene much quicker than a horse-drawn patrol wagon, which cannot travel so fast nor so far as the motor cycles.

It is needless to go on pointing out other examples of the use of motor vehicles by cities. Those given are sufficient to show the various purposes for which they have already been employed. Other work that could be done with them will also suggest itself, such as the removal of dead and injured horses from the streets, removal of snow from the pavement, the raising of street blockades by means of special wrecking wagons fitted with power-driven windlasses and cranes for raising heavily loaded drays and trucks that have broken down, etc. In fact, the self-propelled vehicle is especially adapted for all work where speed, power or capacity are prime requisites. Besides those owned and used by cities, the public utility corporations, such as telephone and electric light companies, are becoming extensive users of automobiles for inspection work, tower wagons for quick repair service, motor trucks with power windlasses for hauling cable through ground conduits, and such special work.

SPRINKLING WAGON AT BERLIN, GERMANY

MUNICIPAL OWNERSHIP FAILURES

Nine Municipal Gas Plants Reported as Such—Services Rendered by and Financial Report of the Richmond Plant —The Norwich Conn., Plant

In an editorial which appeared in the July 17 number of the Municipal Journal and Engineer we referred to reports which had been given out concerning failures in municipal ownership, and stated in connection therewith that we had addressed inquiries to all of the plants named in a certain list of such failures, and hoped, at a future date, to present to our readers a compilation of the replies received. The number of these replies has not been as great as we had hoped for, but it does not seem desirable to wait longer for any possible additional ones, and we are giving herewith a statement concerning two of the gas plants, the other seven listed not having answered our inquiry. If we assume that the nine plants listed as failures were so in every case except the two herein referred to, we have seven failures in the country out of a total of thirty municipal gas plants, which would be a very high percentage. The failure of these seven plants to reply to our inquiries need not necessarily be construed as inability to successfully defend themselves against the charges, but might be caused merely by disinclination of the superintendent or other individual addressed to take the trouble to reply. It would seem only a fair assumption, however, that in the majority of cases a defense would have been offered had the charge been wholly unfounded, and that the operation of gas plants by municipalities has not been signally successful. Possibly one of the reasons for this is that a considerable part of the financial success of a gas plant lies in the ability to obtain a uniformly good quality of raw material and to find a market for the by-products, both of which require skillful financial as well as technical management.

In this connection we wish to say that we intended to imply no relation between this list of alleged failures and the bureau referred to in the second paragraph of the editorial, nor can we understand why certain publications which have done us the honor of quoting this editorial should have assumed that the bureau referred to compiled the list. As a matter of fact, the letter giving the list was signed and dated from Los Angeles, and the bureau informs us that they were in no way responsible therefor.

The gas plants contained in the list referred to, and said to be failures, were those at Bellefontaine, O., Escanaba, Mich., Hamilton, O., Madison, N. J., Middleboro, Mass., Norwich, Conn., Richmond, Va., Santa Clara, Cal., and Wheeling, W. Va. In response to letters addressed to those towns we received replies from plants at Norwich, Conn., and Richmond, Va., only.

The Richmond, Va., Plant

The Richmond plant is the oldest municipal gas plant in this country, having been built by the city of Richmond and put into operation on the 22d of February, 1851. Since 1874 there have been several efforts to com-

pel the city to lease or sell the plant, and several investigations have been made. The Superintendent states that the city is now manufacturing gas having as high candlepower and being as free from impurities as that furnished by any plant in the country. Like most private plants, they furnish free the service connections for illumination or power, and also burners or tips, blow out the house pipes and fixtures, and keep cooking and heating appliances in order and instruct consumers in their use. The consumers number about 10,000 and about 8,000 gas ranges and heaters are in use; but from all these consumers only 148 complaints had been received during the five months previous to the date of writing. The consumption has increased by 78,000,000 cubic feet per annum in the last three years, and the city is now arranging to double its generating capacity to provide for anticipated future growth.

In the year 1906 the receipts and disbursements of the plant were as follows:

RECEIPTS.

Gas bills	$317,629.35
Delinquent gas bills	1,031.64
Sales of coke, etc	4,339.84
Incasing pipe	463.50
Total cash receipts	$323,464.33
Appropriation for gas holder	$73,910.12
Appropriation for extensions	22,970.26
Appropriation for street lamps	5,792.19
Gas furnished streets and public buildings	28,907.70
Coke delivered to city mission	160.03
Difference in inventory	3,816.10
Total gross receipts	$459,020.73

DISBURSEMENTS.

Pay roll	$82,445.01
Expenses	13,053.77
Coal and oil	85,194.64
Extensions	22,970.26
New gas holder	73,910.12
Gas lamps for street lighting	5,792.19
Total gross disbursements	$283,365.99

According to the report of 1905, the original cost of the works was $463,861.08 and the extensions up to the end of the year 1896 had increased this to $647,571.72. No figures were furnished showing the amount appropriated for extensions since that time, but it is seen that during the year 1906 a little over $100,000 was spent for this purpose; it seems probable, therefore, that the total cost of the works to date has been about one million dollars. The interest actually paid upon bonds issued for this plant is $40,000 a year, or 4 per cent. on $1,000,000, which would seem to be sufficient allowance to be made for this purpose. If we assume a depreciation of 4 per cent. on this total valuation, we obtain a similar amount for this item. The difference between the total receipts and the total disbursements in 1906 was $175,654.74. If from this we deduct $80,000 for interest and depreciation, we have an apparent profit of over $95,000. The unpaid taxes would diminish this somewhat, but even after allowance for this and other items, which possibly should be included, such as office rent, remuneration for services of certain city employees, insurance, etc., it hardly seems probable that this apparent profit would be entirely wiped out. A statement in the 1905 report, in which all expenses in connection with the plant, including interest, are placed against the receipts from gas, coke, etc., from the date of the construction of the plant to the end of 1905, shows a balance of $1,003,504.61 in favor of the city, which sum would probably be sufficient to build an entirely new plant, and hence may be taken to more than cover the total depreciation.

It would appear from this as though the plant were not a financial failure, and the statements of the Superintendent, together with the considerable increase in consumption of gas, would indicate that the service also was successful. A report upon this plant was made in 1905 by Mr. Howard Bruce, of New York City, in which considerable criticism was made of the plant, including claims that the service pipes and street mains were too small, and that the location of the gas holder was not the best. These and other criticisms were answered by Mr. W. P. Knowles, the Superintendent of the works, in a pamphlet which can probably be obtained from him by those interested in any further investigation of this case. He admits that the mains and service pipes were too small, but they were considered ample at the time the plant was constructed, and are being replaced by larger ones as rapidly as seems feasible.

The Norwich Plant

The city of Norwich, Conn., owns and operates both gas and electric plants, which are under the control of one commission, but the accounts of which are kept separately. The total amount of income credited to the gas plant for the year ending July 31, 1906, was $48,339.82, of which $358.38 was for gas used by the city; to which should be added $8,451.78 for coke and tar, making a total of $56,790.60. The cost of manufacturing was $33,685.64; of distribution, $2,447.94; salaries and general expenses, $2,644.36. Depreciation was figured at $3,740.64 and interest at $6,666.68, making a total of $49,185.26; showing a net profit of $7,606.34. Depreciation was figured as 5 per cent. on the cost of the plant. The combined gas and electric plants were purchased by the city in 1904 at a cost of $227,000, they having been mortgaged to the extent of $400,000 by the previous owners. The report quoted above, therefore, covers the second year of city control. During the first year $47,190.31 was received from regular consumers for gas and $478.61 from the city, the total receipts being $47,668.92. The total expenses, including depreciation and interest (the latter including interest not only on the bonds issued for the purchase price, $227,000, but also on the $400,000 bonds) was $37,219, leaving a profit of $10,451. The price fixed by the commissioners for gas was $1.35 per thousand cubic feet, with no discount. As to the quality of the gas and other services rendered we have no information, but financially the plant seems to be successful. While the price charged for gas would be considered high in the larger cities, it is perhaps no higher than in the average of cities of the same size as Norwich. Had the gas been sold at $1.15, the income and cost would just about have balanced.

MUNICIPAL BOND SALES

Data Concerning Sales of Municipal Bonds During August by Cities of Less than 100,000 Population—Financial Statistics of Cities Listed

Name of City	Estimated Population	Actual Value of Assessable Property (estimated) Total	Per Capita	Ratio of ass'd to actu'l v'lue	Bonded Debt	Sinking Fund	Net Bonded Debt Total	Per Capita	Tax Rate Per $1,000 Ass'd Value	Bond Sales, August, 1907 Term of Years	Amount	Interest	Price	Basis
Alhambra, Cal.	2,500	$5,000,000	$2,000	40%	$68,500	None	$68,500	$27.40	$11.50	20	$69,500	4½% s.a.	100.642	4.451
Bakersfield, Cal.										1-40 ser.	120,000	4% s.a.	Par.	
Hanford, Cal.										1-40 ser.	40,000	5% s.a.	107.60	4.432
Hollister, Cal.											20,000	4½% s.a.	100.125	
Oceanside, Cal.										1-40 ser.	30,000	5% s.a.	Par.	
Redlands, Cal.	10,000	21,000,000	2,100	33⅓%	201,000		201,000	20.10	$10.80	10 avg.	50,000	5% s.a.	102.613	4.52
Redondo, Cal.	3,170	5,700,000	1,104	33⅓%	106,000	$8,219	97,781	30.84	9.00	12 avg.	25,000	4½% s.a.		
San Jose, Cal.	31,000	28,000,000	903	60%	445,000		445,000	14.35	11.00	15	30,000	5%	100.833	4.92
Bridgeport, Conn.	100,000	68,094,871	681	100%	1,480,358	405,285	1,075,073	10.75	15.50	1-40 ser.	95,000	4½%	101.07	4.42
Stamford, Conn.	25,000	20,000,000	800	1	270,000	68,028	201,972	8.08	8.04	1-40 ser.	55,000	4½%	101.07	4.42
									6.29	1-35 ser.	150,000	4%	100.025	3.998
									3.95	25	50,000	4% s.a.	Par.	
Wallingford, Conn.										1	5,000	4½%	Par.	
Newnan, Ga.	5,000	4,500,000	900	75%	114,000	3,500	110,500	22.10	10.00	28¼ avg.	25,000	4½% s.a.	Par.	
Social Circle, Ga.										20	16,000	5% s.a.	100.632	4.95
Lost River, Ida.										10-20 opt.	2,000	6% s.a.	Par.	
Fort Wayne, Ind.	55,000				604,800	51,782	553,018	10.05	23.40	1-10 ser.	75,000	4% s.a.	100.035	3.992
Petersburg, Ind.											4,000	4% s.a.	Par.	
Des Moines, Ia.											78,000	4½%	Par.	
Halbur, Ia.										10	3,000	5% s.a.	Par.	
Galena, Kan.										10-30 opt.	18,000	5% s.a.	101.00	4.872
Osage City, Kan.	3,000	889,947	297	33⅓%	47,500	384	47,116	15.70	39.00	10-20 opt.	15,000	5%	Par.	
Latonia, Ky.	5,000	5,000,000	1,000	40%	15,000	7,000	8,000	1.60	12.50	5-10 opt.	4,900	6% s.a.	104.57	4.902
Portland, Me.										2	985,000	4½% s.a.	97.79	5.69
Franklin, Mass.	5,200	3,657,760	703		170,000		170,000	32.69	16.00	1-34 ser.	170,000	4%	Par.	
Plymouth, Mass.										1-10 ser.	45,000	4½%	100.176	4.463
Flint, Mich.	16,000									16½ avg.	100,000	4.42½% s.a.	Par.	
Ishpeming, Mich.	14,000	10,000,000	714	66%	145,000		145,000	10.36	27.60	6½ avg.	35,000	5% s.a.	102.144	4.606
Pontiac, Mich.	12,000	8,000,000	667	75%	223,000	6,417	216,583	18.05	21.00	3 avg.	26,000	5% s.a.	100.096	4.965
St. Joseph, Mich.											43,000	4½%	100.89	
Stambaugh, Mich.	1,000	250,000	250	43%	9,000	None	9,000	9.00	3.00	2-10 ser.	9,000	6% s.a.	Par.	
Wyandotte, Mich.	8,000	3,295,740	412	82%	314,909	1,444	313,465	39.18	10.70	30	20,000	4½% s.a.	Par.	
Brainerd, Minn.	10,000	6,000,000	600	40%	60,000	10,000	50,000	5.00	8.00	7⅞ avg.	39,000	6%	100.153	5.968
Grand Rapids, Minn.										15	13,000	5% s.a.	Par.	
Sauk Rapids, Minn.										20	25,000	6%	Par.	
Two Harbors, Minn.										20	40,000	5% s.a.	102.00½	4.842
Wildwood, Minn.										4-11 ser.	8,000	6% s.a.	Par.	
Zumbro Falls, Minn.										1-6 ser.	3,000	6% s.a.	Par.	
Holden, Mo.	2,750	1,696,945	617	40%	10,000	1,255	8,745	3.18	6.50	10-20 opt.	6,000	5% s.a.	101.00	4.872
Lewistown, Mont.										10-20 opt.	15,000	5% s.a.	100.70	4.91
David City, Neb.	2,500	2,250,000	900	20%	22,000		22,000	8.80	18.00	2-20 opt.	22,000	5% s.a.	Par.	
Juniata, Neb.										5-20 opt.	35,000	4% s.a.	100.285	3.936
Oxford, Neb.	1,500	500,000	333	57%	15,000		15,000	10.00	None	5-20 opt.	15,000	5%	Par.	
Shickley, Neb.										9½ avg.	10,000	5%	Par.	
Tecumseh, Neb.	2,400	333,000	139	20%	37,000	3,300	33,700	14.05	26.00	5-20 opt.	16,000	5% s.a.	100.25	4.943
Asbury Park, N. J.										30	100,000	4½%	Par.	
Burlington, N. J.										30	36,000	4½% s.a.	Par.	
Camden, N. J.										20	150,000	4½%	101.683	4.372
										30	135,000	4½%	102.835	4.33
										25	15,000	4½%	101.967	4.37
										30	50,000	4½%	103.07	4.316
East Orange, N. J.	28,000	39,301,200	1,404	100%	2,051,516	300,201	1,751,315	62.55	15.00	40	100,000	4%	100.25	3.987
Bergen, N. Y.										1-20 ser.	2,000	5%	Par.	
Blasdell, N. Y.											3,750	5%	100.666	
Briarcliff Manor, N.Y.	10,000	3,041,000	3,041		75,000		75,000	75.00	7.30	23½ avg.	25,000	4.60%	100.54	4.562
Carthage, N. Y.	3,630	3,500,000	964	33⅓%	253,000		253,000	69.69	11.50	16 avg.	195,000	4½%	100.10	4.491
Cortlandt, N. Y.	12,500	7,000,000	560	85%	240,000	None	240,000	19.20	15.60	1-10 ser.	123,391	4% s.a.	Par.	
Johnstown, N. Y.										2¼ avg.	35,000	5% s.a.	100.216	4.896
Mamaroneck, N. Y.	5,000				215,000		215,000	43.00	7.33	5-29 ser.	100,000	6.60%	100.215	4.581
Mineola, N. Y.	1,300				40,000		40,000	30.77	7.50	5-20 ser.	40,000	4.70%	Par.	
New Rochelle, N. Y.	27,000	24,000,000	889		1,772,017		1,772,017	65.63	24.62	1-5 opt.	47,616	5% s.a.	100.30	4.69
Philadelphia, N. Y.	1,000	400,000	400	94%	37,700		37,700	37.70	8.50	1-20 ser.	20,000	5%	100.39	4.938
Poughkeepsie, N. Y.	26,000	20,000,000	770	65%	1,585,000	None	1,585,000	60.96	26.50	10	40,000	4% s.a.	Par.	
Salamanca, N. Y.	6,000	5,000,000	833	25%	250,000	10,000	240,000	40.00	20.00	1-20 ser.	20,000	5%	100.277	4.96
										1-10 ser.	5,000	5%		
										5-16 ser.	6,000	5%		
Utica, N. Y.										18½	7,500	4%	Par.	
Yonkers, N. Y.	68,000	60,019,750	883		5,018,682	299,600	4,719,082	69.40	24.48½	46 avg.	60,000	4½% s.a.	105.061	4.249
Monroe, N. C.	7,500	4,000,000	533	40%	45,000		45,000	6.00	13.50	12½-6 avg.	45,000	6%	100.222	4.97
Williamston, N. C.										30	10,000	6% s.a.	100.025	5.920
Ashland, O.										15 avg.	45,000	5% s.a.	108.051	4.19
Barberton, O.	10,000	5,600,000	560	50%	158,544	422	158,122	15.81	3.14	5 5-6 avg.	9,168	5% s.a.	101.75	4.617
Cambridge, O.	12,000	10,000,000	833	33⅓%	317,000	6,000	311,000	25.92	3.52	2 avg.	2,989	5% s.a.	101.26	3.908
Celina, O.	3,500	3,534,070		33⅓%	439,961	32,586			43.50	20	38,000	4% s.a.	104.823	4.207
										28½ avg.	15,000	4½% s.a.		
Cleveland H'ts, O.										6 5-6 avg.	7,044	4½% s.a.	100.78	4.36
										6⅔ avg.	6,099	4½% s.a.		
										8½ avg.	961	4½% s.a.		
Delaware, O.	11,000	7,000,000	636	56%	214,584	14,365	200,219	18.20	31.70	1-5 ser.	5,000	5% s.a.	101.68	4.306
East Cleveland, O.	7,000	12,000,000	1,714	30%	300,000	15,000	285,000	40.71	29.90	20½	23,000	4% s.a.	100.047	3.909
Findlay, O.										7 avg.	25,000	4½ s.a.	101.691	4.218
Genoa, O.	1,200	500,000	417	33⅓%	2,800		2,800	2.33	32.00	5	1,400	5% s.a.	102.607	4.414
Georgetown, O.	1,800	1,000,000	555	66%	40,000		40,000	22.22	30.00	28½ avg.	12,500	4%	Par.	
Hamilton, O.	30,000	22,000,000	733	50%	1,064,505	54,684	1,009,821	33.66		16⅔ avg.	6,000	4%	Par.	
Lakewood, O.	10,000	12,000,000	1,200	37%	1,073,044	100,504	972,900	97.20	35.95	15	25,000	4%	101.504	3.867
Loudonville, O.	1,900	1,000,000	526	50%	40,000	3,000	37,000	19.47	17.00	10	26,678	5% s.a.	104.65	4.416
										5½ avg.	15,696	5% s.a.	105.38	3.855
New Bremen, O.	2,000	450,000	225	25%	35,000	7,000	28,000	14.00	41.20	7 avg.	5,500	5%	103.819	4.36
										3½ avg.	1,000	5%	102.228	4.348
										2½ avg.	1,000	5%	101.669	4.344
										1½ avg.	1,000	5%	101.095	4.331
Port Clinton, O.										I-20 ser.	6,000	5%	105.50	3.881
Rockford, O.										I-10 ser.	3,800	5% s.a.	102.414	4.499
Salem, O.	10,000	6,500,000	650	50%	357,000	18,000	339,000	33.90	36.20		9,500	4½%	101.036	

MUNICIPAL BOND SALES—*Continued*

Name of City	Estimated Population	Actual Value of Assessable Property (estimated)		Ratio of ass'd to actu'l v'lue	Bonded Debt	Sinking Fund	Net Bonded Debt		Tax Rate Per $1,000 Ass'd Value	Bond Sales, August, 1907				
		Total	Per Capita				Total	Per Capita		Term of Years	Amount	Interest	Price	Basis
Sandusky, O.	23,000	$14,000,000	$608	50%	$640,000	$10,000	$630,000	$27.39	$16.92	10	$22,000	4% s.a.	100.113	3.986
Warren, O.										1-9 ser.	3,510	4%	Par.	
										3 avg.	3,730	5% s.a.	102.194	4.212
Mountain View, Okla.										30	20,000	6% s.a.	Par.	
Ponco City, Okla.										20	32,500	5%	Par.	
Ashland, Ore.	4,500	2,400,000	533	67%	93,000	None	93,000	20.67	23.00		4,422	6%	Par.	
Corapolis, Pa.	6,000	4,250,000	708	80%	176,000		176,000	29.33	14.50	30	40,000	4½% s.a.	100.50	4.469
Norristown, Pa.										10-30 opt.	75,000	4% s.a.	Par.	
Rochester, Pa.											35,000	4½% s.a.	101.91	
Sharon, Pa.										10-30 opt.	50,000	4%	Par.	
Swissvale, Pa.										21¾ avg.	100,000	4%	101.38	3.905
Sumter, S. C.	10,000	5,000,000	500	50%	141,000	None	141,000	14.10	14.75	20	30,000	5%	Par.	
Graham, Tex.										5-20 opt.	15,000	5% s.a.	100.33	4.925
San Antonio, Tex.	85,000	70,000,000	823	65%	2,155,000	310,000	1,845,000	21.70	16.10	20-40 opt.	102,000	5%	Par.	
Williamsburg, Va.										29	18,000	5% s.a.	Par.	
Mabton, Wash.	500	300,000	600	66%	14,000		14,000	28.00		20	7,000	5% s.a.	Par.	
										15	7,000	5% s.a.		
Bluefield, W. Va.	16,000	10,000,000	625	70%	160,000		160,000	10.00	4.00	30	100,000	5%	Par.	
Morgantown, W. Va.	11,684	9,548,653	817		148,300	2,500	145,800	12.47	4.00	19-23½op.av.	65,000	5% s.a.	101.503	4.959
Antigo, Wis.	7,000	5,000,000	714	66%	81,000		81,000	11.57	20.00	15-19 ser.	10,000	4½% s.a.	101.40	4.3825
Galesville, Wis.	1,000	500,000	500	80%	12,000	None	12,000	12.00	10.00		25,000	3½%	Par.	
Green Bay, Wis.										12 avg.	12,000	4% s.a.	100.416	3.956
No. Milwaukee, Wis.										5-20 opt.	20,000	5% s.a.	102.81	4.368

FIRE DEPARTMENT STATISTICS

THE National Board of Fire Underwriters during the last 18 months has published, in a series of reports, the conditions of the Fire Department in 43 cities, as determined by their special agents. It is probable these reports are as free from prejudice and as nearly correct as it is possible to have them, since the Board has no interest except to increase the efficiency of the Departments, and its agents are undoubtedly warned against being influenced by favoritism or local prejudice. The results of these investigations are given in tabular form for general comparison, insofar as the information permitted of such arrangement. There are, of course, many comments which cannot be included in such a table. The cities are seen to cover the country pretty generally from Massachusetts to Florida and from Michigan to Missouri. The populations range from St. Augustine, Fla., with 5,250, to Cleveland, O., with 440,000. Twenty-two of these, but little over one-half, have permanent Fire Departments only. Seventeen others have a paid Fire Department with a reserve force of call-men, while four cities have Volunteer Departments, with a few paid men, generally the drivers only. The Volunteer Departments are not confined to the smaller cities, but two of them are in cities of over 80,000 population. The ratio between the number of firemen and the population in the various cities, omitting cities in which the firemen are volunteer, shows that the average for the entire list is one fireman for each 680 of population. In the column of days off, it is seen that Cleveland gives its firemen the greatest number off, viz., one in four; Lynchburg, Va., the least, one in twenty-one. In addition to these days off, the firemen, in almost every city, are allowed three hours off each day for meals. A calculation of the relation of fire apparatus of various cities to the population shows the following averages of all cities.

Of the apparatus and service there is one engine to each 14,150 population, one hose wagon to each 9,304, one ladder truck to each 30,343, one chemical engine to each 78,327. Six of the cities have one water tower each and four have fire boats. Of the apparatus in reserve there is one engine to each 73,219 population, one hose cart to each 44,908, one ladder truck to each 124,743, one chemical engine to each 374,230. Two cities have water towers in reserve. Except for engines and hose carts, these figures are somewhat misleading because of the inclusion in the list of a considerable number of cities having only one ladder truck, chemical engine or water tower, some of such cities being several times as large as others, the largest of these possibly requiring only one, while the smallest cannot have less than this number. In the larger cities, therefore, the number of population to each piece of apparatus might be expected to run higher than the averages given.

One of the remarkable parts of this report is that relative to the fire alarm system. Thirty-seven of the cities have an automatic alarm system, four have a manual and two rely upon the telephone. Of the four manual systems, one is described as being good, one as reliable, one fairly reliable, and the fourth unreliable. Of the automatic systems, two are described as being good, four as reliable, fourteen as unreliable, three inadequate, one incomplete, and one poor. In most cases these exact words were used in the report; but in each case a more complete specification of the features considered unsatisfactory are detailed. As a fire cannot be extinguished unless its existence and location are quickly known to the Department, unreliability or failure of perfect reliability of the fire alarm systems would seem to be one of the most important matters to be remedied by the Departments or the manufacturers of fire alarm systems.

Of the service as a whole, criticism is also made by the Board of Fire Underwriters, only four being described as fully efficient. Two are said to be efficient but undermanned; five as being efficient, but either weak or insufficient; eleven are fairly or moderately efficient; eight are described as inefficient; in four, the service is said to be either poor or inadequate. Others are said to be fairly efficient, but weak in numbers or have other drawbacks. In only one city, Milwaukee, Wis., is the service as a

FIRE DEPARTMENT STATISTICS

CITY	Population	Basis of Organization	Membership	Expenses per Capita	Maintenance of Force, Days Off	Apparatus in Service: Engines	Hose	Ladder	Chemical	Water Towers	Fire Boats	Apparatus in Reserve: Engines	Hose	Ladder	Chemical	Water Towers	Fire Alarm System: Type‡	No. of Boxes	Efficiency	Efficiency of Service as a Whole
Cleveland, O	440,000	A	497	$1.35	1 in 4	28	30	11	3	1	2	4	5	2	..	..	A	449	Poor	Fairly efficient.
Denver, Col	175,000	A	167	1.12	1 in 8	8	18	4	1	..	..	2	2	1	1	1	A	197	Incomplete	Fairly efficient; small.
Springfield, Mass	75,000	¾A, ¼C	146	1.68	1 in 10	6	13	5	2	1	..	1	2	1	..	..	A	160	Inadequate	Moderately efficient.
Scranton, Pa	120,000	55% A, 45 C	129	0.69	1 in 8	5	15	1	2	1	..	1	1	..	..	..	M	130	Good	Moderately efficient.
Louisville, Ky	235,000	A	260	1.46	1 in 10	20	21	5	..	..	..	..	4	1	..	..	M	341	Unreliable	Efficient.
Harrisburg, Pa	82,000	B	....	....	†	5	10	2	..	..	..	..	2	..	..	..	A	49	Unreliable	Poor.
Indianapolis, Ind	220,000	A	246	1.18	1 in 7	11	25	9	3	1	..	1	1	..	1	..	M	282	Fairly reliable.	Efficient, but undermanned.
Wilkes-Barre, Pa	104,000	30% A, 70 C	103	.85	1 in 10	5	7	1	1	..	..	1	..	..	..	..	A	83	Fairly reliable.	Fairly efficient.
Milwaukee, Wis	285,315	A	448	2.15	1 in 8	25	27	12	6	1	4	3	2	2	2	..	M	478	Reliable	Strong and efficient.
Cambridge, Mass	98,000	52% A, 48 C	136	1.29	1 in 8	7	8	4	2	..	..	1	1	1	..	..	A	137	Unreliable	Inefficient.
Somerville, Mass	71,000	24% A, 76 C	117	0.98	1 in 8	3	7	3	1	..	..	1	2	1	..	..	A	109	Fairly reliable.	Inefficient.
Chelsea, Mass	37,000	27% A, 73 C	78	0.95	1 in 8	3	5	1	1	..	..	1	3	1	..	..	A	45	Fairly reliable.	Inefficient.
Everett, Mass	29,000	½% A, ½ C	46	0.94	1 in 8	1	2	2	1	..	..	1	..	..	..	..	A	62	Fairly reliable.	Inefficient.
Malden, Mass	40,000	½ A, ½ C	63	1.23	1 in 10	1	4	2	3	..	..	1	..	..	..	..	A	89	Fairly reliable.	Inefficient.
Quincy, Mass	28,800	22% A, 78 C	81	1.15	1 in 10	1	6	3	..	..	..	1	3	..	..	..	A	81	Fairly reliable.	Inefficient.
Trenton, N. J	84,200	A	70	0.99	1 in 8	6	6	2	..	..	..	4	5	1	..	..	A	116	Unreliable	Efficient, but undermanned.
Wilmington, Del	85,500	B	....	0.69	†	11	11	2	2	..	..	..	..	..	..	..	A	79	Unreliable	Inefficient.
Taunton, Mass	34,000	A	132	0.99	2 in 30	3	9	3	1	..	..	..	..	1	..	..	A	114	Fairly reliable.	Fairly efficient.
Nashville, Tenn	97,000	A	110	1.50	1 in 8	9	11	2	1	..	..	2	2	1	1	..	A	130	Inadequate	Moderately efficient.
St. Augustine, Fla	5,250	½ A, ½ C	44	.84	1 in 10	4	1	..	..	..	..	1	..	..	..	..	T	25	Unreliable	Fairly efficient, but weak.
Brunswick, Ga	12,000	A	10	.63	1 in 7	..	2	1	..	..	..	1	..	1	..	..	A	21	Unreliable	Fairly efficient, but weak.
Jacksonville, Fla	42,000	A	55	1.68	1 in 7	2	5	2	..	..	..	..	1	1	..	..	A	82	Good	Efficient, but insufficient.
Macon, Ga	38,000	A	58	1.35	1 in 10	4	4	1	1	..	..	1	1	1	..	..	A	72	Good	Efficient, but insufficient.
Charlotte, N. C	26,000	¾ A, ¼ C	28	.53	1 in 4½	1	2	1	..	..	..	2	1	..	..	..	A	35	Reliable	Efficient, but weak.
Columbia, S. C	28,000	A	39	1.27	1 in 7	3	3	1	1	..	..	1	1	..	..	..	A	23	Fairly reliable.	Efficient, but weak.
Wilmington, N. C	32,000	A	36	0.99	1 in 10	2	3	1	1	..	1	1	1	1	..	..	A	41	Unreliable	Efficient, but weak.
Columbus, Ga	25,000	A	38	1.21	1 in 12	3	5	1	..	..	..	1	..	..	1	..	A	30	Unreliable	Efficient.
Rome, Ga	12,000	B	158	.89	1 in 11	..	5	1	..	..	..	2	2	..	..	..	A	35	Unreliable	Inefficient.
Tampa, Fla	37,000	A	45	1.25	1 in 7	3	4	2	1	..	..	..	3	..	..	..	A	47	Unreliable	Inadequate.
Pensacola, Fla	28,000	A	26	1.21	1 in 8	..	4	1	..	..	..	1	1	1	..	..	A	27	Inadequate	Fairly efficient.
Montgomery, Ala	55,000	A	56	0.78	1 in 14	5	5	1	1	..	..	..	3	2	..	..	A	52	Reliable	Efficient.
Wheeling, W. Va	45,000	A	47	1.10	1 in 7	4	6	2	1	..	..	..	3	..	..	..	A	95	Unreliable	Fairly efficient, but weak.
Key West, Fla	22,000	B	271	0.55	†	3	3	1	..	..	..	2	5	1	..	..	A	25	Fairly reliable.	Unsatisfactory.
Roanoke, Va	33,000	½ A, ½ C	22	0.70	1 in 7	1	2	1	..	..	..	1	1	..	..	..	A	45	Reliable	Efficient, but weak.
Petersburg, Va	27,000	¼ A, ¾ C	28	0.65	1 in 9	2	3	1	..	..	..	2	3	..	..	..	A	30	Unreliable	Weak and moderately efficient.
Lynchburg, Va	24,000	A	47	1.65	1 in 21	3	5	1	..	..	..	..	1	..	..	..	A	46	Fairly reliable.	Efficient.
Chattanooga, Tenn	55,000	A	63	1.26	1 in 8	5	5	1	1	..	..	1	2	..	..	..	A	73	Fairly reliable.	Fairly reliable.
Salem, Mass	38,000	A and C	113	.98	1 in 10	4	5	2	1	..	..	..	5	..	..	..	A	86	Reliable	Weak.
Gloucester, Mass	26,000	A and C	108	1.78	1 in 8	6	9	3	2	..	1	..	1	1	..	..	A	54	Fairly reliable.	Fairly reliable.
Grand Rapids, Mich	101,000	A	155	1.53	1 in 10	10	11	3	2	..	..	1	2	2	2	..	A	153	Fairly reliable.	Fairly reliable, but inadequate.
Haverhill, Mass	40,000	A and C	177	1.32	1 in 10	5	10	2	..	..	..	..	1	..	..	..	A	67	Unreliable	Fairly efficient.
Lewiston, Me	26,000	A and C	105	.83	1 in 5	2	4	2	1	..	..	..	1	..	..	..	A	67	Unreliable	Fairly good service; small.
Kansas City, Mo	250,000	A	247	1.23	1 in 8	8	21	7	..	1	..	3	2	2	1	1	T	Spec'l serv'ce	Unreliable	Weak, but fairly efficient service.

A, permanent. B, part paid; generally drivers only; balance volunteer. C, call man. † Paid men, drivers, on duty nearly all the time. ‡ A, automatic M, manual. T, telephone.

whole commended as being efficient and strong, with a reliable fire alarm system.

Honest criticism received in the right spirit is probably a good thing for any person or department. While these reports seem to contain considerable criticism, it is believed that it may be said to be honest, and not only this but also intelligent. Even though it may in some cases be undeservedly safer, we believe that the Departments not only of the cities criticised but of others, can study with advantage to themselves the comments and recommendations contained in these reports.

Trolley Cars in Wales

THERE are some points of difference between the operation of trolley cars in Swansea, Wales, and in most of the cities of this country. About one-third of the cars are of the double-deck type. The speed limit is six miles per hour in the city and twelve miles in the suburbs, the former being about half that practiced in this country and the latter probably less than half. The fares amount to about two cents a mile, which is very much higher than in any American city with which we are familiar. Although most of the cars are equipped with woven wire wheel guards, not a single one is provided with a fender, which lack of safeguards seems to be general throughout Wales, according to Consul J. H. Johnson, who is responsible for the above description.

Cost of Hauling Pipe

A SIDE light is furnished, or perhaps more correctly is not furnished, upon the cost of loading and carting water pipe, by bids received a short time ago by the city of New Orleans, La., in connection with water works contracts 15 W, 16 W, 17 W and 18 W. These contracts include water pipe of from 4 to 30 inches in diameter, by far the greater part of it being 4 and 6 inches, although quite a little 12-inch is included also. Separate bids were asked for loading the pipe from cars or wharf to the wagon and unloading from the wagon along the street; for loading on the wagon and piling pipe in the yard, and for loading at the yard and unloading along the street, none of these including the hauling, for which a special bid was asked for each hundred feet of haul. All bids were based upon a ton of 2,000 pounds as the unit. Five firms bid upon these four contracts, from one to four on each contract, each firm naming the same prices in all its bids. Three firms bid 50 cents for each of the first three items (loading and unloading); one firm bid 75 cents and one firm bid $1 on contract 16 W, on which it was the only bidder. For each hundred feet of haul two firms bid 1 cent, one firm 1½ cents, one firm 2 cents and one firm 3 cents. Comparing the bids for hauling with those for loading, we find the 1 cent combined with 50 cents, the 1½ cents with 75 cents, the 2 cents with 50 cents,

and the 3 cents with $1. It does not appear, therefore, that any contractor was endeavoring to make up, in the price for hauling, a possible loss in loading, or *vice versa;* nor did a high price for one always accompany a high price for the other. These figures, therefore, are another illustration of the disagreement among the contractors as to the value of specific services, of which almost every contract furnishes a sample, the more striking because the services to be rendered under a given item are not often so well defined and so separable from all the rest of the work as in this case.

FIRE BOATS AND THEIR WORK

Efficient Service Performed by Them on Water Front of Municipalities—New York Has Fleet of Eight—Details of Apparatus

Two new fireboats which were launched last April will soon be added to New York's Naval Battalion, making a fleet of eight boats, including the oldest and the newest type anywhere in service. The new boats, named the *Thomas Willett* and the *James Duane,* after former Mayors, will be of about the same size as the *New Yorker,* the largest boat now in commission, and will contain such features as past experience has indicated as desirable. The hulls of these boats, built by T. S. Marvel & Co., Newburgh, N. Y., are 131 feet long, 123 feet on the water line, 29 feet wide and 14 feet deep. They are heavily built to carry machinery and stand the vibration. The engines, built by Alexander Miller & Brother, of Jersey City, N. J., who are also the general contractors, working under plans of Millard & Maclean, Marine Architects, will be 850 horsepower, direct-acting, compound. The pumps, two on each boat, will be each of 5,000 gallons capacity, of the centrifugal pattern, driven directly by turbines. In general appearance the boats will resemble the *New Yorker* in having a flush deck, allowing the firemen freedom of action. A water tower aft will be a new feature. Whether this will be an improvement of great value remains to be demonstrated. Two turrets for hose connections and the pilot house will be the only other structures above the deck. Each of the turrets will have nine 3½-inch hose connections.

Of the fire boats in commission the oldest is the *Zophar Mills,* Engine 51, built in 1882. Its hull is of iron, 120 feet long and 25 feet beam. The boilers are of the locomotive type, limited to 65 pounds steam pressure. It has two double pumps of Clapp & Jones type, steam cylinder 17 inches, pump plunger 9 inches, stroke 11 inches. Rated capacity, 1,500 gallons per minute for each unit. There are three turret nozzles, having 2-inch tips and 10 outlets for attaching lines of hose. The hose carried is 1,250 feet of 3½-inch, 300 feet 2½-inch and 100 feet each of 4, 5 and 6-inch.

The *New Yorker,* Engine 57, was built in 1890. The hull is steel, 125.5 feet long, 26 feet beam. Two Scotch boilers have a nominal horsepower of 800. It carries two double Clapp & Jones pumps and two double La France pumps, each with 17-inch cylinder, 10-inch pump plunger, 11-inch stroke. As the rated capacity of each pump is 3250, the total capacity of the boat is 13,000 gallons; the capacity, estimated by boiler dimensions, however, is 9,000 gallons per minute. A search light and full equipment of nozzles, siamese connections, nozzle holders, 2,700 feet of 3½-inch hose and minor appliances complete the equipment.

The *David A. Boody,* Engine 132, built in 1892, has a wooden hull, 106 feet long, 23 feet 6 inches beam, 8 feet 6 inches draught, gross tonnage 93.6. One Scotch boiler, built in 1895, is 10 feet 3 inches in diameter and 14 feet long. Two double Clapp & Jones pumps with 17-inch cylinders, 11-inch pump plungers and 10-inch stroke are each rated at 3,250 gallons per minute. The boat is equipped with one turret nozzle and eight hose outlets. Hose carried include 1,300 feet of 3½-inch and 1,000 feet of 2½-inch.

The *Seth Low,* Engine 123, built in 1895, has a wooden hull 99 feet 3 inches long, 23 feet 9 inches beam, draught 9 feet, gross tonnage 82.7. The boiler is Scotch, 9 feet 9 inches in diameter by 14 feet in length. There are two Clapp & Jones pumps, 16-inch cylinders, 10-inch pump plungers, 8-inch stroke, rated capacity 1,750 gallons each. The total capacity, estimated from boiler and engine data, is about 3,000 gallons per minute. The boat is equipped with one turret nozzle and 14 hose outlets. The hose carried includes 1,500 feet of 3½ and 700 feet of 2½-inch. A special hose wagon, carrying 1,250 feet of 3½-inch hose, answers most alarms with this boat.

The *William L. Strong,* Engine 66, built in 1898, has a hull 111 feet long and 24 feet beam. The two boilers are of the Scotch type, have a total capacity of 340 nominal horsepower. The two double pumps have 17-inch cylinders, 10-inch pump plunger and 11-inch stroke, the capacity of each being 3,250 gallons; the total capacity, estimated from boiler dimensions, is about 4,500 gallons per minute. The three turret nozzles have 1⅜-inch, 1½-inch, 2½-inch and 3½-inch nozzles. Hose carried includes 1,900 feet of 3½-inch, 1,850 feet of smaller hose and 800 feet of 4-inch.

The *Abram S. Hewitt,* Engine 77, built in 1903, has a steel hull, 117 feet long, 24 feet 3 inches beam. The two Scotch boilers are 10 feet 9 inches in diameter by 11 feet 9 inches in length. The pumps are La France double pumps with 17-inch cylinders, 10-inch pump plungers, 11-inch stroke; the rated capacity of each pump being 3,500 gallons. There is also a first size fire engine pump with 9-inch cylinder, 5½-inch pump and 8-inch stroke, having a rated capacity of 900 gallons. The total pumping capacity, estimated from boiler and engine data, is about 7,000 gallons per minute. The boat is equipped with three turret nozzles and 12 hose outlets. It carries 1,650 feet of 3½-inch, 750 feet of 3-inch and 480 feet of 1½-inch hose.

The *George B. McClellan,* Engine 78, built in 1904, the newest fireboat now in commission, has a steel hull 112 feet long, 24 feet beam. The pumps are double La

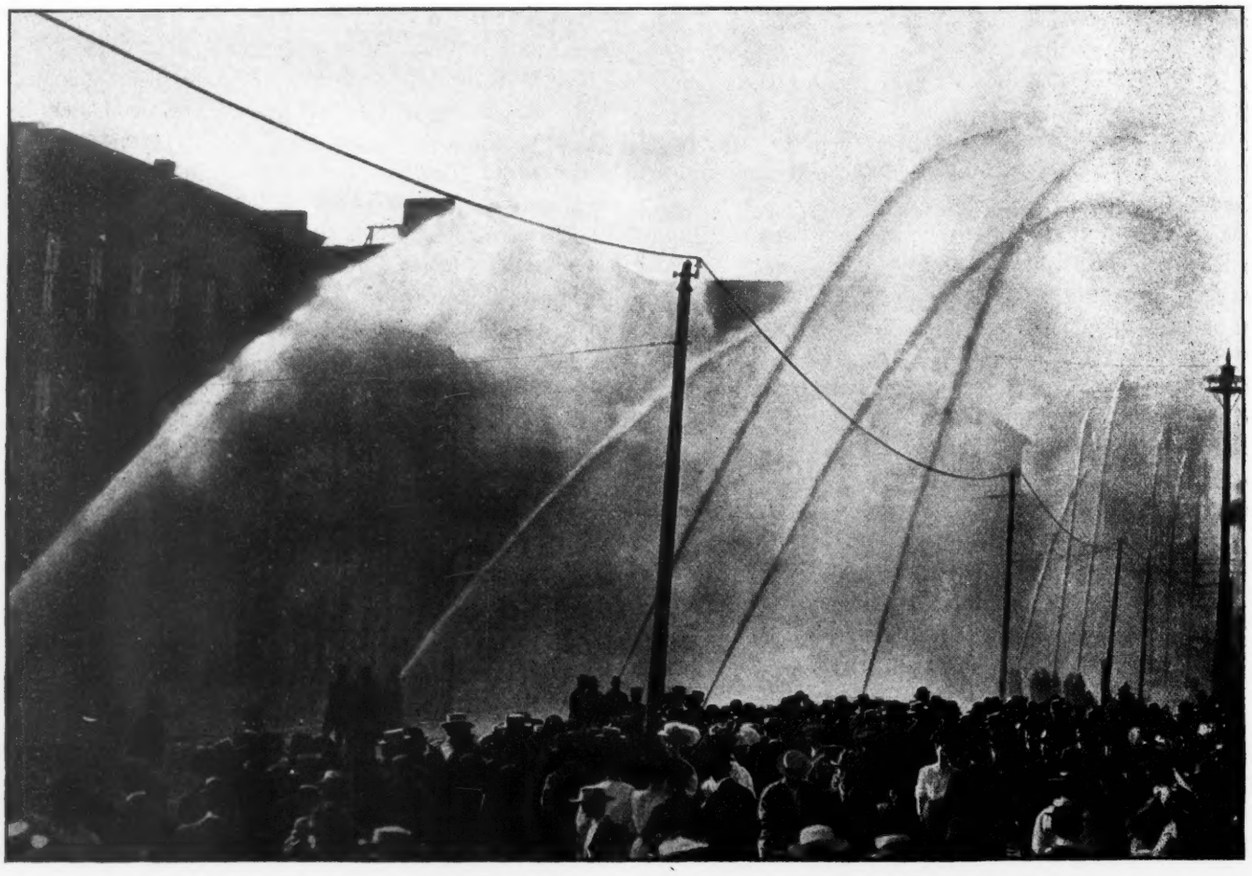
France, 17-inch cylinders, 10-inch plungers, 11-inch stroke. Rated capacity of each, 3,250 gallons. This boat has three turret nozzles and 20 hose outlets. One thousand feet of 3½-inch hose and 1,550 feet of smaller hose is carried.

Although New York City owns the largest and most powerful boats, other cities have fire boats performing efficient service. Milwaukee, Wis., for example, has four, the first of them built in 1893. Engine 29, rebuilt in 1906, has a steel hull 106 feet long, 23 feet beam, 9½ feet draft, 111 tons net, having a speed of 12 miles an hour. The boiler is of the Scotch type, 12 feet in diameter and 15 feet long. The pumps, two in number, have 16¼-inch cylinders, 9¼-inch pump, with a 12-inch stroke, with a rated capacity of 2,500 gallons per minute each. It is equipped with fourteen 3½-inch hose connections, one fixed turret and one turret on a telescope mast, with 2 to 3½-inch nozzles. Besides ample minor equipment, it carries a 2,000 c. p. searchlight.

The fireboat Engine 15 has the largest capacity of any of the Milwaukee boats. Its hull is 118 feet long, 24 feet beam, 10½ feet draft, 194 tons, with a speed of 13 miles an hour. Steam is supplied by two Scotch boilers, 11 feet long by 12 feet in diameter. Three Clapp & Jones pumps with 17-inch cylinders and 10-inch pumps with 11-inch stroke, have a rated capacity of 3,000 gallons each. It is equipped with fourteen 3½-inch hose connections and two turrets with 1½-inch to 4½-inch nozzles; 1,100 c. p. searchlight, and a 7 k. w. generator.

The Cleveland, O., fire boats are interesting, as they are to be used in connection with a special high-pressure system of pipes which has recently been completed and tested. The first of these boats, the *Farley,* was built in 1886. It has two pumps of the Manning type, with 16-inch cylinders, 8-inch pump with a stroke of 10 inches, having a total rated capacity of 3,500 gallons a minute. The hose carried is 1,150 feet of 3½-inch, 750 feet of 2½-inch and 200 feet of 1½-inch. The other boat, the *Clevelander,* was built in 1895 and also has two pumps of the Manning type. The cylinders are 16-inch, the pump 9½-inch and the stroke 12 inches. The rated capacity of the two pumps, 4,000 gallons, was at an official test made by the National Board of Fire Underwriters' Committee on Fire Prevention, exceeded by 335 gallons —a notable exception to the results usually found. This boat carries 1,000 feet of 3½-inch hose, 800 feet of 2½-inch and 450 feet of 1½ inch.

An excellent illustration of the power of a fire boat as compared with a fire engine is here shown. The small, broken stream on the left is from 150 feet of 2⅝-inch hose lengths, 1½-inch nozzle from an "Extra First" fire engine, working at a pressure of 200 pounds. The other streams are attached to the high-pressure pipes to which both fire boats are attached and operating under a pressure of 210 pounds, which gave a pressure at the hydrant of 145 pounds and 95 pounds at the nozzle. These ten streams are from 150-foot sections of 3½-inch hose from three hydrants. The nozzles are 1⅜ and 1½-inch.



TEST OF CLEVELAND, O., HIGH PRESSURE FIRE SERVICE—TWO FIRE BOATS FURNISHING PRESSURE

FROZEN FIRE HYDRANTS

Costly Experience of Various Cities During Last Winter—Causes of Trouble and Methods of Thawing—Other Interesting Data

FROZEN fire hydrants are a source of no end of trouble to Fire Department and Water Works officials, and the importance of closer supervision over them during the winter months is becoming recognized by city officials, generally. Reports from seventy-five cities, received by *Insurance Engineering*, show that during the winter of 1906-1907 thirty-one were troubled from this source, and in many cases valuable time was lost by the fire apparatus on this account.

In New York City alone there were between 1,200 and 1,800 frozen during the winter months, this large number being due to careless use by unauthorized persons and by employees of other city departments; also by lack of proper attention in some cases. It is impossible to estimate, in figures or otherwise, the damage caused. Brooklyn had 86 hydrants out of order on account of leaky valves. In other cities the number of hydrants frozen ranged from one or two, in many cities, to fifty in Cleveland, O., where the extreme cold had its effect. Trenton, N. J., also suffered severely, there being between thirty and fifty frozen on account of defective and leaky valves, while Lynn, Mass., had twenty-four frozen on account of leaky valves and poor drainage; Wilkes-Barre, Pa., fifteen on account of leaky valves; Youngstown, O., ten, because of defective drips and neglect, and Dayton, O., ten because of freezing due to clay soil.

Denver, Col., Portland, Me., and Providence, R. I., avoid trouble by having their hydrants inspected daily and given immediate attention. At Binghamton, N. Y., where freezing is thought to be due to hydrants not being set deep enough, one man inspects hydrants twice daily in cold weather, and carries salt with him, so that they do not remain frozen long, and the Fire Department is never delayed in getting to work. At Columbus, O., the Water Department has charge of the hydrants and inspects them, but there were four frozen hydrants during the year, one of which was due to a leaky valve, while the other three hydrants had sprinkler connections. Rochester, N. Y., and Toledo, O., also have their hydrants inspected by the Water Department continually during cold weather, the latter city sending men with a weighted chain and a pump. Los Angeles and San Francisco, Cal., are unacquainted with such trouble to hydrants, as freezing weather is unknown, while Toronto, Can., Milwaukee, Wis., Bridgeport and Hartford, Conn., and Cambridge, Mass., and other northern cities, were fortunate enough to escape during the year.

It will be seen from the table presented herewith that much of the trouble is caused by defective drip and leaky valves, while neglect also enters into the equation. It is urged that fire hydrants be tested by running water through them before frost is in the ground, after which they should be drained carefully and any necessary repairs made. The test should be repeated in two or three weeks to discover any small leaks, and when once left in proper condition for the winter they should not be used, except in case of absolute necessity. Where ground water stands higher than the hydrant drains, the drip openings should be plugged and the hydrants carefully pumped out by hand. Independent gauge valves on hose outlets should be shut last after hydrants have been used.

Steam is most generally used by cities for thawing, Omaha, Neb., Trenton, N. J., and Toronto, Can., being equipped with a portable boiler; the Water Works Department of Troy N. Y., uses several small steam engines on wheels and Quebec, Can., uses a small steam boiler.

Some cities build fires about the frozen hydrant, others use salt, coal oil, hot water, etc., while electricity is used in Cleveland, O., Waterbury, Conn., and elsewhere. The use of chemical materials, such as mixtures containing salt, is discountenanced, because of the liability of galvanic action being induced between dissimilar metals used in the construction of fire hydrants.

FROZEN HYDRANTS DURING WINTER OF 1906-1907

City	No.	Cause	Method of Thawing	Damage
Akron, O.	8	Defective drip	Steam	Dep't delayed once
Altoona, Pa.	1	Defective drip	Steam	One Co. delayed
Baltimore, Md.	3	Water, top of valve	Steam; coal oil; cotton waste	Dep't delayed once
Brockton, Mass.	3	Surface water	Hot water and pump	
Brooklyn, N. Y.	86	Leaky valves	Steam; salt water	Dep't delayed 16 times
Chicago, Ill.	Very few	Freeze in bottom casting	Hot water	
Cleveland, O.	50	Extreme cold	Electricity	[illegible]
Columbus, O.	4	Leaky valve	Steam	Dep't delayed once
Dayton, O.	10	Clay soil	Dry steam	
Duluth, Minn.	5		Steam	Dep't delayed once
Elizabeth, N. J.	6	Leaky valves	Building fires	
Fort Wayne, Ind.	1	Leaky valves	Steam	
Grand Rapids, Mich.	50	Leaky valves	Steam	
Harrisburg, Pa.	2	Defective joint	Steam	Dep't delayed once
Hoboken, N. J.	1	Leaky valves	Steam	
Lynn, Mass.	24	Leaky valves; poor drain	Hot water	Dep't delayed once
Manchester, N. H.	3	Extreme cold	Steam	Dep't delayed once
New York, N. Y.	1,200 to 1,800	Careless use	Fire engines; rock salt, etc.	Numerous delays
Omaha, Neb.	3	Careless use	Steam	Dep't delayed
Paterson, N. J.	1	Gate lifting	Steam	
Rochester, N. Y.	Very few	Defective drip		
Salt Lake, Utah	6	Improper drain	Salt	
Spokane, Wash.	5	Blocking of drip	Salt; fires	
Trenton, N. J.	30 to 50	Leaking	Steam	
Utica, N. Y.	Very few	Outside interference	Steam; salt	
Waterbury, Conn.	6	Extreme cold	Electricity; steam	
Wilkes-Barre, Pa.	15	Leaky valves	Fires; pump	Dep't delayed once
Worcester, Mass.	2	Slight leaks	Hot water	
Yonkers, N. Y.	1	Poor drain	Steam	Dep't delayed
Youngstown, O.	10	Defective drips; neglect	Hot water	
Quebec, Can.	6	Neglecting drain	Steam	

THE DISPOSAL OF MUNICIPAL WASTE

Systems and Methods, with Special Reference to American Conditions — The Destructors and Their Work—Number at Present in Use—Effect of High Temperatures—Composition of American Waste

By W. F. MORSE, Sanitary Engineer

This Series of articles, begun in the February, 1906, number, will be continued until completed and will be illustrated by original drawings, cuts, diagrams and pictures, and contain many tables valuable for reference.

The Subjects Already Treated by the Author Are:—

1. The Waste Collection Service in American Towns; Methods and Results.
2. Definition of Terms; Quantities; Proportions; Character of Waste in General.
3. Garbage; Analysis; Proportions; Values.
4. Dry Refuse and Rubbish; Quantities and Treatment.
5. Classification:—Commercial Values and After Recovery.
6. The Refuse Utilization Stations in New York, Boston, Buffalo, and Brooklyn (illustrated).
7. Municipal Ashes; Analysis; Proportions; Values when Separated.
8. Ashes from Cremation of Garbage; Analysis and Values; Comparative Table.
9. Comparison of Ashes from English and American Cities; Cremation Means.
10. The Utilization of Municipal Waste in General; English and American Methods.
11. Commercial Values of Refuse and Ashes when Marketed and Manufactured.
12. The Analysis of Garbage; Tankage; Its Value (Special Tables).
13. The Garbage Disposal Plant, Cleveland, Ohio.
14. Street Sweepings; Fertilizing Value and Treatment.
15. Comparative Commercial Values of Waste.
16. Foreign Destructors; Special Chapter by an Eminent Authority.
17. The First Garbage Cremators.
18. Official Reports on Cremators.
19. Chronological List of American Crematories from 1885.
20. List of Government and Institutional Installations.
21. Consolidated Tables of Installations; Hygiene and Sanitation.
22. Types of Furnace; the Operating American Furnaces (fully illustrated).
23. Portable Crematories (illustrated).
24. Summary of American Furnaces.
25. The Destructor System Using High Temperature (illustrated).

The Following Are to Appear:—

26. Calorific Value of Waste as Fuel (Comparative Table).
27. Reduction and Extraction Process Described and Illustrated; the Earlier and Later Methods.
28. American Methods; Col. Waring and His Successors.
29. Present Situation in This Country; Résumé.
30. Means for Improvement as Suggested by Several Investigators.
31. What May Be Expected of the Future.

THE number of British destructors is steadily increasing all over the world. Since the first "Fryer" cell at Manchester, thirty-one years ago, more than three hundred municipal plants have been installed. The list cited by Mr. Goodrich (MUNICIPAL JOURNAL, October, 1906) has in the past year been increased as follows:

Destructors installed in Great Britain..	17
Continental Europe	2
Australia	3
South America	1
Canada	1
The United States	2
This total of.....	26

added to the previous number brings the grand total to three hundred and eight. None have been reported discontinued, but many have added more cells or grates to the original plants.

THE QUANTITIES OF WASTE CONSUMED

The early forms of cell destructors destroyed daily from five to eight tons of refuse per cell, or about twenty-two ponnds per square foot of grate area per hour, but these are now mostly changed or improved by the addition of forced draft, and their power for combustion greatly increased.

The continuous grate destructors burn from twelve to twenty tons per grate daily, contingent upon the character of the waste, the average being fifteen tons. This is at the rate of fifty-six pounds per square foot of grate per hour, and may perhaps be taken as the average destroyed for these forms of grates. This is exceeded in some of the later types of destructors, where the amounts run from sixty-four to one hundred and three pounds per square foot of grate area. The work of an English destructor in this country, burning American mixed waste, was 58.7 pounds per square foot of grate per hour. There have been some estimates of the quantities burned in Great Britain, from which it would appear that upwards of two and one-quarter million tons are destroyed by 260 municipal plants each year.

THE LOCATION OF THE PLANTS

This is the most important, often the most difficult point to determine in a proposed refuse disposal station. Since the repeated failures in this country of crematories and incinerators because of nuisance, there is prevalent an idea that all waste-consuming plants must necessarily be offensive in their operation; thus the authorities nearly always meet with opposition no matter where they select a site, ending sometimes in abandonment of the scheme.

Economy in the collection service demands that the location shall be central with respect to the collection district, as this reduces the haul to the shortest distance; also that the road grades for the loaded teams shall not be too steep. As the average cost of hauling one ton of garbage one mile is from 60 to 80 cents, according to the number of horses and men employed, the saving in distance of transportation is an important consideration.

In most American towns there is no site near the geographical center that would permit the establishment of a refuse disposal station except in the neighborhood of dwellings, and in this case the cost of ground is frequently excessive, and the opposition of property-holders very strenuous. Usually a point (preferably on the northern side of a thickly populated district) can be had, where the collection carts will not be so much in evidence, and where the work can be done with lessened chances for complaints. When a suitable location can be found within reasonable distance, the objections and arguments against it should be carefully stated and fully considered. Opposition for sentimental reasons or through ignorance of the facts involved should not be allowed to outweigh the mature judgment of those best acquainted with the subject.

In the selection of the type of disposal furnace, the writer believes it to be entirely possible to secure a design that will not call forth the determined opposition heretofore usually encountered.

Nuisances Dependent Upon Temperatures

The discharge of offensive gases from a chimney of a refuse disposal plant is caused by incomplete combustion of organic matter. The gases thrown off are oxygen, O, nitrogen, N, carbonic acid, CO_2, carbon monoxide, CO, and water vapor or steam. In theoretically perfect combustion the carbon monoxide burns by uniting with oxygen, leaving the nitrogen—which is inert and incombustible—to be discharged from the chimney. But, in practice, this perfect combustion is rarely reached, hence the proportion of the empyreumatic gases, present in larger or smaller amounts, that are capable of being burned but still are not destroyed, must be taken as an evidence of the character of the work.

A competent authority says: "On heating organic compounds, decomposition takes place which is known as destructive distillation. Many of the resulting gaseous compounds have a more or less objectionable odor. When such an admixture of gases is exposed to a higher temperature—which has been fixed at 1,500° Fahr. as the lowest safety point—they are themselves dissociated or decomposed, and the resulting simple gases are without odor." Another writer says: "It may be stated as an absolute principle, that the destruction of organisms must be done within the furnace itself. If any of the gases are allowed to escape, with the organisms in suspension, the destructor ceases to be of any value if it does not become an actual source of danger."

This is perhaps an extreme view of the case, but it emphasizes the fact that the temperature must in the first place be high enough to destroy all forms of organic life, and that once begun the work must go on to the end at a temperature at or above the point of safety.

The Gradual Development of High Temperatures

It is in the particular feature of temperatures that destructors with forced draft differ so widely from the usual form of crematory and incinerator used in this country. The evolution of the modern destructor from the early cell type was comparatively slow until the introduction of forced draft. For years the cells continued to burn small quantities by natural draft with repeated complaints of nuisance. The introduction of the "fume cremator" by Mr. Chas. Jones, of Ealing, England, was a step in the right direction and materially advanced the work. This was a wide "fuel box," placed in the main flue of the chimney outside the cells, or sometimes in a detached chamber, and was kept supplied with coke or good coal. All the gases of combustion from the cells were made to pass over this live fire.

It was not until 1897, when this unsatisfactory method was abandoned in favor of a powerful forced draft under the fire-bars, that real progress was made. At the present time all destructor builders guarantee a positive temperature maintained within the furnace, and, as a rule, fifteen hundred degrees in the combustion chamber is the point below which the temperature must not fall. One set of specifications issued by an English city provides, "that the general arrangement of the grates and flues shall be such that the whole of the gases generated in the process of combustion shall be submitted to a temperature of not less than 2,000° Fahr. for a sufficient time to allow the noxious germs to be destroyed."

The reports of the trials and continuous operation of the destructors abroad, now invariably contain accurate and extended data of the temperatures in various parts of the destructor and flues. These serve a double purpose, since they show the absolute destruction of offensive gases to the entire satisfaction of the town authorities, and also, by comparison of the temperatures taken at the same points in the several installations of the builder, it is possible to detect a failure of any part to come up to the general standard.

These temperatures range from 1,500° to 2,800° Fahr. A table made by a well-known engineer of twenty-six towns with installations of six different makers, shows the average temperatures in the combustion chambers immediately before the boilers to be 1,900°, and at the base of the chimney 600° Fahr. Some destructors, fitted with economizers, feed-water and super-heaters, obtain a still greater heat, instances being recorded of the fusing of wrought iron in the combustion chambers at a temperature of 3,000° Fahr.

High Temperatures Not Attained in American Practice

In American practice this requirement of temperature is seldom or never made in specifications drawn up by municipalities, nor is it brought prominently forward by the furnace builders. Whatever form of "fume cremator" or "smoke-consumer" the builders may propose is assumed to afford sufficient protection for the town. Hence the result of the work of the crematory or incinerator so far as relates to the destruction of obnoxious gases is often unsatisfactory. Smoke is unconsumed carbon, and when discharged from a garbage crematory loaded with the unconsumed gases from the destructive distillation of the organic matter at low temperatures, these gases cannot be destroyed after escaping from the furnace without additional expenditure for fuel and labor that would be prohibitory.

Any one desirous of obtaining data upon the temperatures of the American crematories, would have to experiment for himself. In all the years this work has been going on there has been but one accurate report that can be quoted. This is by Professors Holman and Wendel upon the Brown Crematory, Boston, Mass., 1893, and is the only one, so far as known, that gives anything of value as regards temperatures. In this case the trial was made to determine the quantities and cost of burning the garbage with oil as fuel; the temperatures were a secondary consideration.

In the same year the work of the Engle Crematories at the World's Fair, Chicago, Ill., for six months established the fact that high temperatures could be maintained by oil fuel, with a forced draft, with a combustion chamber of large size and a 50-foot chimney. Unfortunately there was no official report of this published until long afterward, and there were never technical and authoritative reports from competent engineers that would have directed attention to this most successful work, and perhaps have brought about better designed furnaces and

more efficient results in the subsequent installations of American crematories.

It is because of this particular feature of low temperatures that the garbage cremating furnaces in this country fail of success. Formerly, and but few years ago, it was held by all the furnace builders that high temperatures were not necessary except at the fire-box, and this erroneous idea is still advocated by many. They rely upon a secondary fire, placed under some division of the garbage grates, or at the rear end of the main chamber, or in a small compartment cut off from the main chamber by a division wall, or else in a separate and detached chamber not a part of the furnace. There is no combustion chamber in the true meaning of the term; all these substitutes are merely secondary furnaces for reheating the incomplete products of combustion from the furnace proper, and all, without exception, must use extra fuel.

A reference to the preceding descriptions of American crematories will make it clear that this principle of this second fire is a necessary part of all the various types of American crematories and incinerators. There is but one exception. The Thackeray Incinerator at Montreal, Canada, and San Francisco, Cal., which is a battery of cells placed back to back, connected with a main fire without secondary fires, and discharging the unconsumed gases at the top of chimneys of excessive height.

There are many points in which the cremator and the destructor vary widely, but in none is there so wide a divergence as in the means for producing and maintaining a high temperature within the furnace itself. From a personal experience in the construction and operation of both, the writer is of the opinion that that will be the most successful furnace which can develop the temperature necessary to destroy municipal waste and, at the same time and with the same operation, consume the offensive products of combustion thrown off by the waste.

Operation Without Nuisance

The operating works of the British destructors seem to be almost completely free from complaints of nuisance from the chimneys. From an extended examination of the statements made by the local engineers, surveyors and superintendents in charge of these plants, it appears that there are practically no complaints on the score of noxious odors from the waste, either in the process of charging or in its combustion in the furnace.

In some instances notes are made of the fine dust in the charging rooms when the fires are clinkered, but the later installations are provided with a system of ventilating ducts connected with the air supply to the grates, which in a large degree remove this objectionable feature. Probably the most reliable accounts on this point of nuisance in the work of these destructors is from those American engineers who in the past two years have had opportunities to inspect closely the English installations.

One observer in visiting destructors in four London boroughs where the plants were almost completely surrounded by dwellings, found the dust at one point, Shoreditch, very annoying, "but no odors were noted, and the chimney was free from smoke." At Wandsworth "the plant was in a generally clean condition and only a small amount of light smoke was visible at the chimney top." At Westminster "no odor was noticed and but little of light smoke was coming from the chimney." At Battersea "there were no indications of nuisance of any sort in or about the destructor, and the chimney top was free from smoke." (From "Notes on British Refuse Destructors," by M. N. Baker, Associate Editor, *Engineering News,* New York.)

Another experienced engineer says: "In our country odors from such works have been complained of in many instances, and a number of crematories have been abandoned as nuisances. In England, however, such has not been the case. Furnace extensions are built every year. Complaints are rare. In Hamburg, Germany, where is the largest single garbage plant in existence, this is giving no offense, although adjoining a built up section of the city." (Mr. Rudolf Hering, in *Proc. Amer. Soc. Civil Eng.*, Vol. 29, No. 1.)

The conditions attending the work of an English destructor in this country, burning the mixed waste of the town of Westmount, Canada, a suburb of Montreal, are stated in the Report of the Consulting Engineers to the City Council at Westmount, upon the Combined Refuse Disposal and Electric Lighting Station. "The first piece of apparatus put into operation was the refuse destructor, which was tested May 5, 1906, with the following results:

Weight of garbage destroyed	28,090 lbs.
Hours of operation	8 hrs. 32 min.
Pound of water evaporated per pound of waste, from and at 212° Fahr.	1.36 lbs.
Temperature of furnace, average	1,994 deg.
Temperature of chimney, average	334 deg.

"Since that time the destructor has been in continual operation, successfully destroying with absolutely no smell or smoke, whatever has been brought, varying in quantity from fifty tons per day down to five tons."—*Ross & Holgate, Consulting Engineers,* Montreal, Jan. 1, 1907.

Quantities and Composition of American Waste

The composition and quantities of American municipal waste, not including street sweepings, has been variously stated by several writers. None agree exactly, though in a general way they practically reach the same conclusions. But when it is required to guarantee a fixed sum per ton as the cost of burning, or to specify the power to be developed from a given quantity of waste, a more exact knowledge of its composition and weight are necessary.

The previous reports (see Municipal Journal, March 7, 1906) are undoubtedly based upon incomplete data, and can only be taken as approximate. The tables following, covering a period of one year, showing in detail the seasonal variations, and the quantities and composition of municipal waste from an approximate population of 26,000, give far more accurate and complete information than any report yet issued. They are from the records made by Mr. J. T. Fetherston, Superintendent of Street Cleaning, Borough of Richmond, New York City, and were furnished for the information of bidders in calling for tenders for a proposed refuse disposal plant.

The figures reported are of very great value for comparison in other towns where the conditions are nearly the same. This collection district includes private houses,

stores, tenement houses and manufacturing establishments, and is made by the city's teams. The specifications provided that the plants should be capable of destroying sixty tons of mixed household refuse per day of twenty-four hours, when the material is such as is collected during the winter months. The guarantees provide:

(*a*) That the residue shall be free of organic matter and be thoroughly burned, hard and vitreous.
(*b*) That no nuisance shall be created in the ordinary operation of the plant.
(*c*) That neither odors nor dust shall escape from the building or chimney.
(*d*) That at no time during the continuous operation of the plant shall the temperature of the combustion chamber or main flue fall below 1,250° Fahr.
(*e*) That the flues and boiler setting shall be so arranged that the dust may be withdrawn after one day's cooling of the flues.
(*f*) A minimum seasonal evaporation of water and an amount of useful steam per pound of waste burned shall be specified.
(*g*) The quantity of waste to be handled by one man, per eight-hour shift, shall be stated, and the amount of waste to be burned per hour during the winter months shall be guaranteed.

There were required certificates from Engineers in charge of three other plants of the same type as proposed for, showing details of operation of their plants without nuisance, the temperatures obtained under usual working conditions, and the quantities destroyed in a given time. With these specifications was furnished a plan of location and a suggested design for house and chimney, though the final plans for these were left to the bidders to propose, conforming to the various types of furnaces to be built.

Under these specifications tenders were received in December, 1906, and a contract was made for the installation of a modern refuse destructor, conforming to all the details required. This plant is now in progress of construction.

In 1906 Mr. R. H. Thomson, the City Engineer of Seattle, Wash., made an examination of the operating American crematories and afterwards visited Europe to inspect the destructors in service. The specifications then issued were for a destructor of large capacity to operate under guarantees suited to the local conditions, and the tenders accepted early in 1907 were for the installation of a modern forced-draft high-temperature destructor, which is now being built.

These examples, taken with the successful work of the Westmount installation for a year and one-half, indicate the suitability and usefulness of the British destructor for the requirements of American waste disposal work.

At this time the cities of Boston, Mass., and New York, N. Y., have special commissions of eminent engineers gathering data and investigating the question of waste collection and disposal, with the view of recommending some general plan for the treatment of the general waste of these cities. Their reports, when ready, will undoubtedly add greatly to our knowledge of the subject and will be specially valuable as concerning this department.

TABLE XXXV.—HOUSEHOLD REFUSE AS COLLECTED FOR ONE YEAR

MONTH	Ashes and Rubbish				Garbage				Total Collection		
	Volume	Weight			Volume	Weight			Volume	Weight	
	Cu. Yds.	Tons	Per Cent. of 12 Months' Collection	Per Cent. of total Monthly Collection	Cu. Yds.	Tons	Per Cent. of 12 Months' Collection	Per Cent. of total Monthly Collection	Cu. Yds.	Tons	Per Cent. of 12 Months' Collection
1906											
January	2014.	962.9	10.6	83.5	409	190.6	5.7	16.5	2423.	1153.5	9.3
February	1852.	871.5	9.6	87.6	265	123.5	3.7	12.4	2117.	995.0	8.0
March	2199.	1072.7	11.8	86.0	373	173.8	5.2	14.0	2572.	1246.5	10.1
April	1972.	973.8	10.7	79.3	545	254.0	7.7	20.7	2517.	1227.8	9.9
May	1857.	900.4	10.9	78.7	574	267.5	8.1	21.3	2431.	1257.9	10.2
June	1725.	734.0	8.1	71.9	617	287.5	8.7	28.1	2342.	1021.5	8.2
July	1516.	426.0	4.7	58.3	653	324.3	9.2	41.7	2169.	730.3	5.9
August	1661.	417.4	4.6	54.3	753	350.9	10.6	45.7	2414.	768.3	6.2
September	1677.	429.1	4.7	50.9	889	414.3	12.5	49.1	2566.	843.4	6.8
1905											
October	1567.	564.7	6.2	60.1	803	374.2	11.3	39.9	2370.	938.9	7.6
November	1678.	759.8	8.4	71.4	652	303.8	9.2	28.6	2330.	1063.6	8.6
December	1894.	877.5	9.7	76.6	574	267.5	8.1	23.4	24.68	1145.0	9.2
			100.				100.				100.
Totals	21612.	9079.8			7107.	3311.9			28719.	12391.7	
Percentage of total collection	75.2	73.3			24.8	26.7					
Quantity per 1,000 inhabitants per day	2.77	1.164			0.91	0.425			3.68	1.589	

Remarks.—1 ton = 2,000 pounds. Daily collection of refuse, except Sundays. Average weights per cubic yard—Ashes and Rubbish = 0.42 tons Garbage = .466.

TABLE XXXVI.—COMPOSITION OF HOUSEHOLD REFUSE BY WEIGHT

MONTH	From Table No. 1		From Mechanical Analysis							
	Ashes and Rubbish %	Garbage %	Fine Ash %	Clinker %	Glass, Metal, etc. %	Coal and Cinders %	Garbage			Rubbish %
							Vegetable %	Animal %	Free Water %	
1906										
January	83.5	16.5	40.5	1.4	3.1	34.7	14.3	0.6	0.7	4.7
February	87.6	12.4	40.3	1.3	3.4	38.3	10.9	0.4	0.3	5.1
March	86.0	14.0	42.6	1.2	3.1	35.5	12.2	0.5	0.6	4.3
April	79.3	20.7	40.8	1.0	3.2	31.5	17.9	0.8	0.8	4.0
May	78.7	21.3	37.7	0.6	5.7	31.8	18.7	0.7	0.7	4.1
June	71.9	28.1	30.7	11.1	8.4	16.2	24.4	1.0	1.4	6.8
July	58.3	41.7	23.8	0.8	9.0	12.6	36.3	1.6	1.7	14.2
August	54.3	45.7	20.0	0.5	10.9	9.0	39.7	1.7	2.0	16.2
September	50.5	49.1	21.7	0.6	8.5	7.7	42.5	1.9	2.2	14.9
1905										
October	60.1	39.9	29.0	3.5	6.6	15.2	30.9	3.1	1.5	10.2
November	71.4	28.6	31.8	0.7	5.2	30.8	22.6	1.8	1.0	6.1
December	76.6	23.4	34.4	0.9	3.1	34.6	19.6	1.1	0.8	5.5
Averages	73.3	26.7	34.7	1.8	4.8	26.7	22.6	1.2	1.1	7.1

NEWS OF THE MUNICIPALITIES

Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

Roads and Pavements

FORT WORTH, TEX.—Mayor Harris thinks that the loss of time caused by difference of opinion is of such importance that the mode of procedure should be to decide on the streets to be paved and allow the property owners to select the material to be used. Specifications covering bitulithic, brick and rock asphalt have been drawn by the City Engineer, and the Mayor says if the requisite number of signatures on any street asks for a certain kind of pavement, the request ought to be granted without regard to the opinion of the Commission.

KNOXVILLE, TENN.—The report of W. A. Park, expert on paving, has been submitted to the Mayor, Board of Aldermen, and Board of Public Works. Mr. Park finds no curb in paving districts built by specifications; no concrete base in paving districts built by specifications; only one block of asphalt in city of required thickness; several blocks of asphalt on Central avenue and Fifth avenue defective up to this time; storm sewers on West Main and West Cumberland badly laid; brick edging of asphalt badly laid. A report of the rattler test was made on Southern Paving & Construction Co. brick at the Knoxville Foundry & Machine Co. Five brick block of lithonia granite were tested; states "maximum loss on one brick 5.5 times granite loss, minimum loss on one brick 3.4 times granite loss, specifications require not more than 2.25 times loss on granite."

LOS ANGELES, CAL.—It is proposed to construct a boulevard twenty-five miles long and lighted by electricity, to extend from the City Hall to the lighthouse on Point Firmin, near San Pedro. The Highway Commission is interested, and business men and automobile clubs are so enthusiastic they will help raise the necessary funds. The Chamber of Commerce of each place and the Board of Trustees of San Pedro have approved the project, and right of way for the entire distance has been secretly secured. It is believed the cost will be about $200,000.

RACINE, WIS.—In spite of the fact that nearly half of Center street has been paved, the property owners contemplate making an effort to have the style of laying the brick changed. The trouble is caused by the old question of whether the bricks should be laid straight across the street or in the herring-bone style. Contractors agree that the herring-bone pavement saves many thousands of bricks on a large job, and also admit it is inferior to the straight-across style. In this particular work, because of the irregularity in the size of the bricks, it is impossible to lay the bricks close together in the herring-bone style, and the result is large cracks are left between them which are filled up with sand, thereby acquiring less hard surface for the streets.

Sewerage and Sanitation

DALLAS, TEX.—Policemen and members of committees appointed by the Board of Health are being encouraged to make a strict study of the sanitary regulations and to carefully carry out their duty of notifying offenders and compelling observance of the laws. As all janitors of schoolhouses are also commissioned policemen, it is the intention of the Board to see that they are fully instructed in the sanitary laws as applied to schools and to arrest offenders. Attention has been called by those of the Board who have been making tours of the city to the fact that there are many lots on which weeds have not been cut as the law directs. It is said that there are lots about the city with weeds ten feet or more in height, and so thick that nothing can penetrate them.

MONTREAL, CANADA.—Dr. McCarrey, Chief Food Inspector, recently caused 14,735 pounds of fruit to be confiscated as unfit for human consumption. It was learned that the decayed fruit had been sent from California to this city to be sold at auction. In addition to the foregoing, 625 pounds of bad fruit were seized during one week at different stores in the city, as well as 760 pounds of vegetables, 205 pounds of fish and 600 pounds of sundry produce. The usual seizures of meat were made at the public abattoirs.

PARIS, FRANCE.—The inhabitants of Paris number over 2,500,000, and the total flow of sewage is stated to average 17,660,000 cubic feet per diem. This is collected in intercepting sewers, which convey it by gravitation down to Clichy, where it is raised 118 feet by powerful pumps and distributed by gravitation through the sewage farm at Acheres, which has an area of 2,471 acres. The ground is laid out and the irrigating trenches are so arranged that the only service needed in regulating the flow is the opening and closing of regulating valves. The pumping engines are capable of indicating 3,000 horsepower. Experience shows that one acre of suitable soil can take 1,580 cubic feet of sewage daily, so that an area of about 11,200 acres would be needed to deal with the whole of the discharge of the Paris sewers.

PORTLAND, ORE.—According to intelligence received by Health Officer Pohl, it has been discovered that many rats in San Francisco, which have been examined, have been found infected with bubonic plague germs. Therefore, at the request of Mayor Lane, the orders of the Attorney-General requiring all vessels from San Francisco, while in Portland, to fend off from the wharf a distance of six feet and to wear rat-funnels on every line, will be strictly enforced under the supervision of Harbormaster Speier. If this order is disobeyed, under the police powers granted by the charter to the city Board of Health, the master of the vessel disobeying the instructions will be arrested. A. Zaaick, the Russian rat-catcher, has been engaged by the city health authorities to operate along the water front, and has been granted unlimited powers. Nothing will be left undone to rid the city of rats, and the possibility of the appearance of the plague.

SPOKANE, WASH.—Dr. M. B. Grieve, City Health Officer, has discovered that the large gray rats that carry the bubonic plague have appeared in Spokane. It is thought they have been carried in on freight shipments from other points, and immediate war will be commenced for their extermination. The Board of Health contemplates offering a bounty for each rodent secured.

TRENTON, N. J.—Dr. Henry Mitchell, Secretary of the State Board of Health, is notifying the authorities in municipalities where no local Board of Health exists to appoint one without delay. If the Mayor or appointing power fails to perform this duty, the State Board will appoint. In most cases the local authorities are promptly complying with the notice. The State Sewerage Commission has been ordering the seacoast towns and other municipalities that sewer into the ocean to cease doing so. Some of them are considering the installation

of septic tanks. The pouring of enormous quantities of filth into the ocean from the sewers of the populous summer resorts has become very offensive. It is found that much of it flows into and along the shore instead of passing out to sea, pollutes the waters in which people bathe and covers the beaches.

WASHINGTON, D. C.—The Smoke Committee of the various railroads entering the city has made a report showing the efforts made to eliminate the smoke nuisance. In addition to the committee, each company also appointed inspectors to report all cases of smoke and to look after smoke violations at the round houses, where engines were furnished with sufficient low volatile coal to keep the fires alive while they remained there; this coal is smokeless, and when an engine was due to take out a train it was furnished with 2,000 pounds of coke, which, placed on top of the coal, enabled the engineer to take the train out of the District limits without making any smoke. Freight and yard engines were also supplied with coke. The report for August, which includes six railroads, shows a total of 27,933 engine movements with only sixty-two cases of objectionable smoke reported.

Water Works

ATLANTIC, IA.—The city water has been declared contaminated by the health officers and the creameries ordered to boil it before using. There has been no epidemic of disease from its use, and the general health of the people is better than usual at this season of the year, but much apprehension is felt over the condition of the water. Samples have been sent to the State Chemist to ascertain whether the contamination is in the water or the mains.

LYNCHBURG, VA.—The new gravity water works has been given its final test. The system, which brings water from Pedlar river, twenty-two miles from the city, is pronounced a decided success. Water is brought through a thirty-inch main from an immense dam. The new system, including everything, has cost slightly over $700,000.

MOBILE, ALA.—Council has authorized Acting Mayor A. S. Lyons to employ Captain T. W. Nicol, an expert engineer, to make an inspection of the water works system, examine into the feasibility of an impounding basin for the city water works at Spring Hill, and make a report as to the best manner for the city to secure a bountiful supply of pure water, and the most economical manner of operating the system to obtain this result. As many complaints have reached the Mayor's office recently relative to the city's water supply, and some harsh criticism has been made of the condition of the reservoir at Spring Hill, Mayor Lyons says he intends to have a thorough inspection made for the purpose of remedying the trouble.

PHŒNIXVILLE, PA.—Over forty cases of typhoid fever have recently been reported to the local Board of Health, and the disease is said to be spreading. The epidemic is attributed to the drinking water which comes from the Schuylkill and is unfiltered.

SALT LAKE CITY, UTAH.—The Water Committee of the Council has denied the petition of four corporations to repeal the ordinance which requires that money deposited for a meter shall be held as long as the meter is in use. Frank L. Hines, Superintendent of the Water Works, has stated that he would favor the substitution of an act which would allow the money to be refunded at the end of a certain period, and cites statistics from thirty-three of the largest cities of the country, in twenty-one of which there is no charge for meters, in ten others the deposit is refunded, and in two a charge of $1 is made for reading the meters.

TORONTO, CANADA.—Dr. Sheard, the city Medical Officer, states that the city water is very bad, and is getting worse. This is caused by the presence of sewage matter in it as a result of the bottom of the lake around the intake pipe being stirred up by the wind. The Doctor advises those who wish to avoid typhoid fever to boil all drinking water.

Street Lighting and Electric Power

BICKNELL, IND.—The Citizens' Committee, appointed by the Town Trustees to report on terms and conditions for awarding an electric light franchise, has submitted a statement favoring the use of the incandescent cluster system of lights for six months, after which arc lights should be substituted, not less than thirty in number, of 2,000 candlepower; the franchise to be so framed that the town will have an option on the plant after five years, should it desire to engage in municipal lighting. The town is now without street lights.

MADISON, WIS.—The railroad rate commission has granted permission to the La Crosse Gas and Electric Company to raise its rates. The company asked for the permission, declaring that the present rates are so low that the company lost $2,500 monthly. Under the ruling the Commission permits the company to charge for power $27 per year per horsepower and about 3 cents per kilowatt hour for current. In the matter of lighting rates the La Crosse company can now charge $21.80 per year for a sixteen candlepower lamp on one-third of the connected installation plus about 6 cents per kilowatt hour for current used. This is the first decision of this kind ever made in the State. Under the new State law public service corporations, as well as customers, may appeal to the Commission for relief.

SALT LAKE CITY, UTAH.—The "American" party substitute for the franchise proposed by the Utah Light and Railway Company has been unanimously passed by the City Council. The franchise gives to the company the right to make all the desired extensions, and provides that in return the company shall release all its restrictions on the power derived from the fall at the head of the Big Cottonwood conduit, and that it shall sprinkle the streets named, which it is estimated would cost the company $500,000 during the life of the franchise, which expires in 1955. In addition, it makes the stipulation that whenever the city's population increases 25,000 the company shall sprinkle 25 per cent. more of the streets, the same to be designated by the Council.

UNION, S. C.—In view of the fact that the present engine has not enough power to operate the old and new light dynamos, it has been found to be necessary to change all the street lights, including those in the suburbs, from the present arc system to enclosed arc lights. This change, it is thought, will be most satisfactory and give the municipality much better electric light service, as the proposed lights are steadier burners and require less attention, it being necessary to trim them only every one hundred hours, or about every eight or ten days.

Fire and Police

BERKELEY, CAL.—Assistant City Electrician Charles N. Farmenter has put in operation a wireless call system for police. A pole has been erected near the Town Hall, from which calls will be sent. Each policeman will carry in his hat a receiving apparatus connected with a bell in his pocket. When called the policeman will report at the nearest police telephone box.

JOLIET, ILL.—Appointments to the Police and Fire Departments in future will be under the control of the Civil Service Commission, which is determined to enforce

the rules. Candidates must make application in the regular form, have the endorsement of at least three reputable citizens of Joliet, and pass the usual examinations in reading, writing and arithmetic; in addition, the police will be questioned regarding the location of streets and buldings, and the firemen asked to state their knowledge of fire-alarm boxes, water hydrants, etc. There are also regulations as to height and weight, and the use of intoxicating liquors, disobeying orders, disrespect to superior officers, incompetency, neglect of duty, or neglect to pay their bills, are among the offenses that constitute ground for dismissal.

Manchester, Conn.—The South Manchester Fire Department has recently been much criticised by reason of lack of promptness in attending fires. This is caused by the fact that the various fire companies do not own their own horses; these animals are worked during the day, and if a fire occurs, and they are in some other portion of the town, they have to go to the fire house for the apparatus and back to the fire. It is also alleged that the drills required by the by-laws of the department have not been held this summer, and that some of the members do not know how to couple a hose.

Salt Lake City, Utah.—Chief of Police Mackenzie has announced that he will enforce the now operative curfew ordinance, and, in order that parents may know its provisions, he has had it published in full. Minors under fifteen years of age are prohibited on the streets or in public places between 9 P.M. and 4 A.M., except such minor be attended by some adult person. It is the duty of the Chief of Police to ring the alarm bell at the fire station at 9 o'clock each night or cause some other signal to be given.

Tacoma, Wash.—George McAlevy, Fire Chief, is urging the City Council to grant him some of his recommendations for the better handling of big fires, such as a new fireboat to be housed on the waterfront; a new brick station at Forty-third and South L streets, and a two-story frame building to house a one-horse hose reel, and to keep a fireman at a station which he would like to build at Thirty-ninth and Cheyenne streets. In his recommendation for a fireboat, the Chief wants a steel hull, oil-burner boat, which will cost $125,000. The tug contemplated would have a capacity of 6,000 gallons per minute and could throw a dozen streams and draw about seven feet of water. The boat would be equipped with double-suction high-speed engines, and would be a power as a fire-fighting affair, as it would be the equivalent of about seven department fire engines.

Government and Finance

Chicago, Ill.—It is reported that Chicago has $2,500,000 in bonds on the market, and the sum of $3,500,000 intended for a sinking fund for other bonds in bank drawing 2½ per cent. interest, and that Comptroller Wilson proposed taking $1,000,000 out of the bank and investing in city bonds, which were not selling as fast as desired. Corporation Counsel, however, said that the bonds could not be purchased, as the sinking fund is a trust fund, and, according to the statutes, must be kept in cash.

Minneapolis, Minn.—The home rule charter, designed to simplify the civic government and concentrate the controlling power in fewer officials, was defeated for the fourth time in ten years at the recent election, by a majority of 2,318 out of a total of 16,293 votes. Members of the Charter Commission think that not enough interest was taken in the election, but it is alleged that it was the vote of the laboring men that proved decisive, and many others feel that the issue has been forced, and that the average citizen is not sufficiently acquainted with the new charter to adopt it. The Charter Commission was appointed May 1, 1903, for a term of four years, to frame the charter, which was not completed until the 10th of May of this year. City Attorney Frank Healy says that if the charter had passed another commission would have had to be appointed to act on the amendments.

New York, N. Y.—In compliance with the resolution passed by the Board of Estimate and Apportionment, October 30, 1906, ordering that in the city's annual budget in 1907 the sums required for running expenses be set out in detail, and not in lump sums, it is expected that about eight of the large departments will have a segregated budget to present this year. The system of bookkeeping in some of the departments is so antiquated and complicated that the head bookkeepers have heretofore been unable to submit such a detailed schedule, but Comptroller Metz has had a Bureau of Investigation and Statistics working on improving the methods of municipal accounting, and examining the city budget demands, and it is hoped that by the fall of 1908 all the departments will be able to present proper schedules. The enforcement of the new system will mean that when an appropriation is granted for a certain thing it must be expended for that purpose and no other.

Richmond, Va.—Charges of graft among the members of the City Council, and the several departments of the city government, have been made, due to the discovery that the lowest bid for furnishing supplies to the City Home had been duplicated by another person. Now, it is charged that members of the Council are violating their own ordinances by accepting proposals to do work for the city when the law expressly forbids that. This, it is said, is accomplished by having firms in which Councilmen and Commissioners of Departments are interested incorporated, and having the "company" bid on the contracts. The matter will come before the Grand Jury at the October term.

St. Louis, Mo.—Four ordinances have been introduced in the two houses of the Municipal Assembly providing for the appointment of a commission to investigate and report conditions connected with legislation for the control of rates charged by public utility corporations, under the Cooper Public Utility bill, passed by the Missouri State Legislature at the last session. The purpose of each is about the same, namely, to make a thorough investigation of the franchises granted to every corporation furnishing public service, as well as the possibility of making a reduction in rates without depriving the corporations of just recompense. The gas and electric, telephone, heating, transfer and street car companies are to be particularly investigated, as is also the Terminal Railway Association, which handles practically all of the railroad business inside of the city, including the Union Station and two bridges across the Mississippi river. It is expected that at least six months will be required to prepare the report, and no legislation is predicted short of a year at best.

Tacoma, Wash.—Members of Council are advocating abolishing the office of Commissioner of Public Works and substituting therefor a board to handle the work now coming under the jurisdiction of one man. The members argue that public improvements would be carried on more economically and fewer complaints would arise if several men, acting as a board, controlled the situation, instead of one man appointed by and working directly under the Mayor, who in turn works under the orders of the Council, the influence of the Council over the Commissioner thus being remote. All public works are now under the Commissioner, including water, lights and streets; he awards contracts for street work of all kinds,

after it has been ordered by Council, and the conduct of each department is directly under his charge, when, in the opinion of Councilmen, each really forms a separate branch of the city government and should have its own head.

Refuse Collection and Disposal

NEW YORK, N. Y.—Dr. John C. Bensel, Commissioner of Street Cleaning, has asked for an appropriation of $8,435,420, an increase of $2,000,000 over last year. As an outcome of the recent strike of street cleaners, the Commissioner considers it will be necessary to raise the pay of the sweepers from $720 to $780, as he is informed it is nearly, if not quite impossible, for a man to support a family on $720 a year without becoming at times a public charge. An increase of the working force by more than sixteen hundred men is advocated, as Dr. Bensel says the increase is essential for the proper performance of the work of the department. Attention is also called to the fact that there are ninety-nine miles of streets in the Borough of Brooklyn not under the control of the Department of Parks, and, while the charter provides that these streets shall be cleaned by the Department of Street Cleaning, no appropriation has ever been made for the work.

OAKLAND, CAL.—The Garbage Committee of the Board of Health has sent an urgent communication to the City Council favoring the ownership and operation of a garbage plant by the city. The Committee states that the present system of dumping garbage in various sections of the city is creating unsanitary and dangerous hygienic conditions, and asks that immediate attention be given the subject, as the city is in great danger of an epidemic. It further suggests that the present system be discarded and that a modern sanitary incinerator of sufficient capacity be purchased, to be operated by the city, and that the Board of Health be given supervision of the same, as well as the collection of the garbage, with powers to make penalties for infractions of its orders.

ST. LOUIS, MO.—Street Commissioner James C. Travilla has given instructions to the Superintendent of the Street Cleaning Department to shift the foremen of the several cleaning divisions in an effort to reduce the average cost of sweeping the streets. In some of the districts the cost for August was 57 cents per square, while in other districts the cost per square was as high as $1.49, with a range between those figures which brought the average cost to $1.02. It is proposed to change the foremen from the districts costing but 57 cents per square to the districts where the cost is $1.49, in an effort to determine if the foreman, or some condition over which he has no control, is to blame. Other districts will be treated in a similar way.

YOUNGSTOWN, O.—The garbage collectors say they have much difficulty in disposing of the refuse they collect. Recently they were instructed by the Board of Public Service to dump the contents of their wagons on the Obendorfer farm, but when they got there they were threatened with guns. On their return to the city building they were told by Commissioner Hogan to take the stuff out to Pine street. Here they found a notice posted by the Board of Health to dump no garbage. Having the authority of the Public Service Board, they disregarded the warning. A mass meeting was held and protest made when East End Park and adjacent land was used as a dumping ground. The drivers also claim that they cannot unload their wagons at the crematory until after many hours of waiting. A dumping ground and a new crematory are the solution favored by members of Council.

Parks and City Beauty

LEXINGTON, KY.—The report on the playgrounds that have been established in the city under the care of the Civic League, has been submitted by Supervisor Mustaine to Chairman Thomas Johnson, of the Playground Committee. The number of children attending each and all of the grounds, the net results shown, the total cost of maintenance, the help required, the encouragement that ought to be extended from the general public, are the main points covered in the report. An average of two hundred and seventy-five to three hundred children daily availed themselves of the privileges offered, and manual training was a largely successful feature, only a comparatively small percentage of the work inaugurated being left incomplete. Plays and games also proved highly popular with the children, and this phase of the work has been carefully systematized, athletic contests being interesting.

NEW YORK, N. Y.—A plan for renovating the soil of Central Park has been suggested by Dr. N. L. Britton, of the New York Botanical Garden. The soil itself is excellent mechanically, the top soil being about ten inches deep, but it is lacking in plant food. The park should be handled now just as the scientific farmer treats his exhausted fields. The lawns should be plowed up and seeded down with crimson clover. Then this crop should be plowed under and the ground put back in grass. Clover lives principally on the nitrogen it takes out of the air. This nitrogen together with the mass of fiber in the plants would restore the soil and put the lawns in shape for ten years.

NEW ORLEANS, LA.—Reports recently submitted by its officers to the New Orleans City Park Association show that the Perystylium, a concrete structure, which cost $15,330.20, has been completed, a new deer pen erected, a new hothouse, which will cost $12,000, has been begun, and filling done in Orleans street costing $3,999.57. Sunday and Wednesday concerts were given at the park from May 2 to September 8. The limits of the park were extended during the past year by the purchase of several tracts of land at a cost of $28,000. The Association now has a total membership of five hundred and ninety-two.

PORTLAND, ORE.—Mayor Lane and City Auditor Barbour have devised a plan by which it is intended to protect the city, its employees and contractors, from the excessive rates of interest charged by money lenders. Hereafter all warrants must be paid to the individual who holds the original claim against the city, unless a power of attorney, duly recorded, is filed with the City Auditor. The Mayor found that nearly two-thirds of the city employees have often received their pay before the first of the month from money brokers at a heavy discount. Contractors, also, have sold their warrants, sometimes at 10 to 15 per cent. reduction, brokers taking the warrants and collecting the money. Recently the Mayor discovered that trouble to the city could arise from the practice, because a contractor might claim he had never legally authorized the broker to cash the warrants.

PROVIDENCE, R. I.—Jules Vacherot, Chief Gardener of the City of Paris, and one of the most eminent authorities in the world on landscape architecture and similar subjects, recently visited Providence to inspect the parks and the plans of the proposed Metropolitan Park system. He is in the United States with the purpose of making a tour of the principal cities in search of possible new ideas to take back to Paris with him. He was shown Roger Williams's Park and the plans and some of the ground of the proposed Metropolitan system, under the guidance of Alfred Stone, Henry A. Barker and other promoters of the Providence park movement.

SPOKANE, WASH.—Mayor C. Herbert Moore, at the housewarming of the new quarters of the Chamber of Commerce in the Hutton Building, when speaking on "The Needs of Spokane," laid emphasis upon the necessity of creating public squares in the business districts and paying more attention to the artistic side of structural work. He said that Spokane needs hundreds of cottages and apartment houses and large hotels to care for its rapidly increasing population, but it also needs squares, fountains, public buildings, and miles of paved thoroughfares extending into the suburbs, and that no man can erect a better monument than by erecting an artistic structure, installing a fountain or setting aside ground to be used as a breathing space in the heart of the city.

Rapid Transit

DETROIT, MICH.—A resolution to amend the Korte ordinance was recently introduced in the Common Council. It provides that the Committee on Franchises be requested to consider the advisability of inserting in the street railway ordinance now pending a straight 3-cent rate of fare and universal transfers, particularly so as the people have for the second time expressed themselves at the polls that nothing else but the above fare will be acceptable. The majority of the Aldermen believe that the decisive vote cast at the recent election against the extensions desired by the Detroit United Railways, is an expression from the people that they will not sanction any extensions unless there is a general settlement on a straight 3-cent fare.

MERIDIAN, MISS.—The problem of connecting the North and South side divisions of the city by electric railway has at last been solved. A conference held between W. H. Ambrecht, Vice-President and General Manager of the Meridian Street Railway Company, and Mr. John McInnis, representing the Mobile and Ohio and Queen and Crescent system, resulted in an agreement whereby an overland bridge across the railroad tracks be built, of sufficient width for double tracks, and wagon roads on either side, at a cost of $50,000.

MILWAUKEE, WIS.—The first hospital car in the United States has been placed in service by the Milwaukee Electric Railway and Light Company. It is equipped with stretchers, a swinging table, surgical instruments, dressings and bandages; a white enamel tank carries twelve gallons of water and feeds one of smaller capacity in which water can be heated by electricity. A set of electrically heated pads will do away with the cumbersome hot water bottles and be serviceable in the treatment of shock resultant from an accident or surgical operation. As soon as word is received of an accident along any interurban line the car, carrying Dr. Chas. H. Lemon and the nurses, will be given right of way, and by thus sending the doctor to the patient instead of bringing the patient to the doctor the company believes it will reduce suffering in accidents.

NORTH SMITHFIELD, R. I.—As a condition for the renewal of the franchise of the Woonsocket Street Railway Company, a part of the Rhode Island Company's system, in this town, the Town Council has asked the railway company to extend the present fare limit westerly to the siding known as "Potter's switch," in the westerly part of Slatersville; to give half-hourly service between Slatersville and Woonsocket instead of hourly as at present; to give transfer privileges to any part of Woonsocket to those paying a fare in North Smithfield; to furnish light for the roadbed and to give half fares for school children.

WHITING, IND.—Angry citizens recently invaded the Council Chamber in the City Hall and prevented the passage of the ordinance granting a 50-year franchise to the Hammond, Whiting and East Chicago Railway Company. They threatened to tar and feather all Aldermen who voted for the measure and drove them from the hall.

Miscellaneous

ANDERSON, S. C.—Anderson enjoys the distinction of being the only city in South Carolina that has a curfew law. The City Council a short time ago requested the City Attorney to draw up the ordinance, and it was promptly ratified by the Council. All boys of 14 years and less must keep off of the streets after 10 o'clock at night. The city and mill clocks are used as the curfew bells.

BEAUMONT, TEX.—The residents just beyond the limits of Beaumont are much dissatisfied because of the refusal of the City Council to permit the property owners to connect with the proposed sewer extension to the end of the city, and are contemplating the incorporation of a city government of their own, to be called West Beaumont. A meeting was called at the office of Attorney Oswold Parker, when it was declared that if the city would guarantee certain improvements the people residing in the end of the city beyond Seventh street would be willing to come into Beaumont and become taxpayers, but the opinion of those present was that it was better to incorporate another town rather than run the risk of broken promises. There will be no police in the new town as there will be no business houses or other places that are liable to cause a gathering of the people and a disturbance of the peace.

CHARLESTON, S. C.—Health Officer Dr. J. Mercier Green declares he intends to enforce the ordinances now existing which require physicians to report within 24 hours all cases of transmissible diseases which they have charge of, or be subject to a fine of not more than $50 or not more than 30 days' imprisonment. Four deaths occurred in Charleston in August from transmissible diseases, and none of these cases were reported to the Health Officer. Dr. Green also proposes to compel physicians and ministers to report births and marriages within three days after they occur, according to the law. The penalty of not reporting deaths and marriages is the same as for failure to report transmissible diseases.

MILAN, ITALY.—Milan has a service of about 500 one-horse cabs, each of which has a taximeter system, by which the charge is fifteen American cents for the first three-fifths of a mile, and two cents for every succeeding three-tenths of a mile, equal to from fifteen to twenty cents per ordinary fare between two city points. The cabs run day and night, always with the same charges. The ordinary victoria cab carries four persons comfortably. Street car fare is only two cents, except before 8:30 o'clock in the morning, when it is one cent. The automobile cabs, of which there are now about twenty-five run by a private company, also have the taximeter system, some being driven by benzine and others by electricity. The charge is fourteen American cents for the first quarter of a mile and two cents for each following one-eighth of a mile for a fare of not more than four persons. All cabs in Milan are under municipal control and there are heavy penalties for overcharging or refusing fares. A system of carriage men is maintained in the city squares, and they keep a nearly equal supply of cabs at all stands or move them from one part of the city to another when occasion requires.

OAKLAND, CAL.—Mayor Mott has taken a firm stand against the establishment of laundries, planing mills and other incongruous business in residence sections, as he considers that the man who buys property in a non-business section of the city and builds a home is entitled to reasonable protection against having an enterprise established next door. Noise, moisture, steam, smoke and other necessary concomitants of a laundry, planing mill or box factory are considered undesirable neighbors.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Municipal Interest

DOG LICENSE

Ex parte Ackerman.—An ordinance imposing a license tax on the keeping of dogs is not repealed by implication or by a subsequent ordinance imposing a license tax on every kind of business authorized by law; no reference being made to the keeping of dogs. To accomplish the repeal of a statute or ordinance, there must either be language employed expressly declaring such intention, or there must exist in the subsequent statute or ordinance language so inconsistent with the provisions of the former as to necessarily effect a repeal by implication. An ordinance imposing a license tax on and regulating the keeping of dogs is not inconsistent with the Police Code, as amended in 1901, authorizing cities to license any kind of business not prohibited by law; the ordinance being one of police regulation, and the evident object of the code being to restrict the power exercisable by municipalities to impose license taxes to the purpose of regulation only. Municipalities need not look to the Legislature as the source of their power to enforce local, police, sanitary, and other regulations deemed needful for their welfare and that of their inhabitants, since the Constitution expressly vests in them plenary power to enforce such police, sanitary, and other regulations as they may determine shall be necessary for health, peace, comfort, and happiness of the inhabitants, provided such regulations do not conflict with general laws; and the Legislature may not limit the exercise of such power. An ordinance imposing a license tax on the keepers of dogs is not invalid for unreasonableness and as providing for the taking of property without due process of law, because providing for the destruction of a dog upon which no license tax has been paid two days after the dog had been impounded, unless it has been redeemed, without notifying the owner. An ordinance requires keepers of dogs to pay the Town Marshal an annual license tax, and to attach a seal or device to the dog's collar, provides that the Marshal shall seize and impound any dog upon which a license shall have not been paid, and that at the end of two days, no person claiming such dog and paying the license therefor, the Marshal shall destroy such dog, and provides that every person violating the ordinance shall be guilty of a misdemeanor, etc. It was held that the ordinance is not objectionable as uncertainly stating what specific acts shall constitute a violation thereof, as not certainly showing whether one accused must violate all or only a part of the provision of the ordinance before he can be adjudged guilty, as authorizing the Marshal to commit a trespass by going on the premises of a citizen without a warrant or other process.—Supreme Court of California.

AUTHORITY TO ACQUIRE PARK LANDS

City of Oakland vs. **Thompson, City Clerk.**—Though no repugnancy exists between the Statutes of 1889, authorizing cities to acquire public parks and boulevards, and the Statutes of 1901, authorizing them to incur indebtedness for and regulating the acquisition of municipal improvements, the 1889 act does not provide the sole method by which land may be acquired for public parks, since the Legislature may provide two independent schemes, to either of which a municipality may resort. Under the Statutes of 1901, authorizing cities to acquire or construct any municipal improvement, including street work, etc., and property necessary or convenient to carry out the objects, purposes, and powers of the municipality, and the Oakland City Charter, authorizing the city to acquire lands for public parks, etc., it may purchase lands for parks and boulevard purposes. The Statutes of 1901, authorizing cities to acquire land for parks, and providing a proposition to incur debt therefor shall be submitted to the voters, does not contemplate that each price of land desired for a park should be voted upon separately where there is a single scheme of park improvement, including several parcels of land widely separated, to be converted into separate parks.—Supreme Court of California.

STREET RAILWAY RIGHT OF WAY

People ex rel. Westminster Heights Co. vs. **Coler, Borough President, et al.**—A consent by the Highway Commissioners of a town to the construction of a railroad was not void because the route consented to was at the time entirely over private property, in which the public had not then acquired any rights whatever.—New York Supreme Court, Appellate Division.

WATER FRANCHISE

City of Bessemer vs. **Bessemer Water Works.**—As a general rule, courts of equity may not enjoin threatened crimes on the one hand, nor prosecutions under statutes or ordinances on the other, though the statute or ordinance for the violation of which prosecution is threatened is absolutely void. Equity may protect a vested franchise from unlawful invasion or disturbance upon the ground of irreparable injury, or such injury as cannot be adequately estimated in damages at law. A court of equity should not interfere, at a water company's instance, to enjoin a city from making effective an ordinance claimed to impair the company's vested rights under a franchise, where there is doubt as to the right claimed by the company, or where it is uncertain whether the acts complained of are infractions of it. The power of municipal corporations is measured by legislative grant, and they can exercise such powers only as are expressly granted or necessarily implied from the powers expressly conferred. Under the Bessemer city charter, authorizing the city to make all needful provisions, by contract or otherwise, for the supply of the city and the citizens thereof with water, and to regulate the rates to be charged, etc., the city may contract with a company for rates at which water shall be supplied to its citizens for a definite period, suspending its charter power respecting the regulation of rates during such period; and hence a subsequent ordinance attempting to reduce the rates specified in the contract is invalid, as impairing the obligation of the contract.—Supreme Court of Alabama.

ACCEPTANCE OF STREET—ASSESSMENTS

Oliver et al. vs. **City of Newberg et al.**—When the City of Newberg proceeded to act under its charter, providing the city might open, control, etc., all highways within the corporate limits and excepting the territory out of the county's jurisdiction, it accepted the relinquishment and grant of all county roads within its territory, and ipso facto they became streets, and hence subject to the burden of streets. Whether a county road becomes a street when included within a city's corporate limits depends upon the intention of the legislature, as gathered from the city charter, general laws, and the whole course of legislation on the subject. A sale of lots with reference to a plat showing a street is sufficient to complete a dedication of the street, subjecting it to any new servitude incident to it as a street. The Newberg city charter, Section 82, provides each lot or part of block abutting a street, extending to the center line of the block, shall be liable for the full cost of a street improvement upon the one-half of the street abutting upon it. Section 64 provide the Council shall assess upon each lot, etc., liable therefor its proportionate share of the cost of an improvement. Section 65 provides the total cost shall be assessed proportionately to the adjacent lots. Section 66 requires the Council to determine the proportionate share of the cost assessable to each tract, and to assess the proportionate shares, and make the determination and assessment conclusive. Section 110 provides that, in assessing the cost of a street improvement, the Council shall assess one-half of the cost upon the property on each side of the street to the center line of the abutting blocks, excepting that the cost for building or repairing sidewalks shall be charged to the property immediately abutting thereon. It was held that Section 82 merely declares what proportion of a block shall be liable for the improvement of an abutting street, that the measure is not to each lot for the expense of the improvement of the half street abutting such lot, and that it is proper to apportion the total expense of the improvement pro rata according to frontage on the street.—Supreme Court of Oregon.

LOCATION OF HIGHWAY

In re Redmond.—The decision of Commissioners to lay out a road is sufficiently definite as to starting point, the side lines and the width; the application to the Highway Commissioner for the laying out of the road, and the petition to the court to appoint the Commissioners, containing a survey of the proposed road by distances, degrees and minutes, with every angle marked in some way, and the starting point described: "Beginning at a pile of stones in a clump of bushes on the south side of the highway running east and west past the M. schoolhouse, near a beech tree west of said schoolhouse. . . . The line of survey to be the center of the proposed highway, which proposed highway shall be three rods in width"—and the decision containing such survey, though failing to state the width of the road and that the survey is to be the center line. The award of damages by Commissioners for laying out a highway cannot be disturbed except for some error of law plainly manifest.—Steuben County Court of New York.

REVIEW OF THE PERIODICALS

Abstracts and Synopses of Important Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading United States Periodicals

Transforming Chicago

The *World To-Day's* September number is devoted mainly to Chicago. Of the various articles, the most interesting—both for its suggestiveness to other cities and for its relative novelty in connection with Chicago—is the inspiring story of the great schemes, now in gradual process of realization, for Chicago's transformation and beautifying. These are set forth by John Rothwell Slater under the appropriate title, "Making a City into a Metropolis." He says that in the great civic awakening that came "when the Columbian Exposition was planned and constructed, there was born the impulse to win back for the center of the city that heritage of beauty which had been almost forgotten." Through the various intervening political and other diversions, this movement "has gone quietly but steadily forward"; and in the recent traction discussion it gained a new and unexpected impulse. The expert study of the surface lines "led necessarily to a consideration of the equally baffling problem of the elevated railways, with their 'loop' crowds, inadequate 'rush-hour' service, and other complications. This again led to a study of the location of railroad passenger terminals as affecting changes in surface and elevated lines. Analysis of the crowded condition of the downtown streets further showed that a large proportion of the traffic is heavy teaming to and from freight houses." Thus it became clear that the thing to do was to increase the area available for retail trade and business buildings, and by replanning to obtain more homogeneity—in short, to recast the city, so as to secure "something more than a mere temporary solution." The Commercial Club took up the matter, raised a subscription fund of $50,000 to cover expenses, and, as is now well known, persuaded D. H. Burnham to take the leadership in comprehensively replanning the city on lines of utility and beauty. Two large rooms were erected and fitted up for him on the roof of the Railway Exchange building, and here, with maps and masses of data of all kinds, his assistants have been at work for some months.

The plans include the treatment, as a central feature, of the space lying east of the Illinois Central tracks, from Randolph street to Twelfth street. This space, reclaimed from the lake during the last five years, is now receiving its top dressing, and is to be a beautiful park. It is likely that the new Feld Columbian Museum, of white marble, will stand in the center, facing Congress street. The Illinois Central tracks are depressed and at this point roofed over, the space above them making a great plaza. It is not practicable to widen the congested downtown streets, but at strategic points where there are old buildings, open spaces are to be created. The straightening, widening and new paving of Michigan avenue, from Adams to the river, and then a new bridge there, is an important detail; but there is also thought of an elevated boulevard, crossing the river on a double-deck bridge, to carry pleasure traffic. The Lakeshore boulevard, outside the Illinois Central tracks, is to extend from "downtown" to Jackson Park. It would complement the Lake Shore drive on the North side; and the narrow lagoons that separate it from the coast line will be available for aquatic pleasures. At Jackson Park the lagoon bends inward, and through the center of the old Midway Plaisance connects with Washington Park, a nine or ten-mile stretch for rowing or paddling in the heart of the city. A concentration of railroad stations, the construction of circuit boulevards and new diagonals, and an orderly lining of the banks of the Chicago river are among the other plans for the transformation of Chicago.

The Smoke Nuisance

Many cities are combatting the smoke nuisance, and most often on the initiative of the business men themselves. In New York the evil has never been anything like as serious as in many other cities, and the work of the New York Anti-Smoke League, which was described by John B. Coleman, its attorney, in *Leslie's Weekly* of September 5, has been relatively free from that spectacular aggressiveness which has characterized the contest in cities where the evil was more pronounced. Yet the work has been pretty effective, and it is none the less valuably suggestive for its quiet orderliness. The violators of the smoke ordinance, Mr. Coleman declares, were found to be of three classes: First, the great public service corporations, burning soft coal; second, wood manufacturing and wood-turning concerns, which burn the sawdust and shavings made by them; and third, a large number of small violators who were in the habit of burning soft coal and waste materials. "With the third class there was experienced little or no difficulty in making them comply with the law. After one or two arrests for violations these offenders were convinced that it was more economical to burn hard coal or to install proper furnaces for the burning of soft coal. A different situation had to be met in reference to the punishment of the second class of offenders. They are forced to burn the shavings and sawdust made by them, because there is no other practicable way to dispose of them. The public dumps will not take them, and the board of fire underwriters insist that they be got rid of daily. While these establishments are making very much less smoke than they formerly did, they have not as yet entirely abated the nuisance." In the prosecution of the first class of offenders, the large public service corporations, the Anti-Smoke League met with the most determined resistance. Even after their conviction under the law, these corporations would come into court and ask for a suspension of sentence on the ground that

it was absolutely impossible for them to generate the immense power necessary to operate their plants without burning soft coal and giving forth great quantities of smoke. When the Edison company was brought into court, both sides presented experts, and the company finally agreed to conduct in co-operation with the Anti-Smoke League a series of experiments in smoke combustion. The officials of the company "have in good faith made every effort to reach a successful solution of the problem, and they have succeeded far beyond their anticipations. . . . Using this result as a basis, the Anti-Smoke League now intends to proceed very vigorously against other large public service corporations which continue to violate the law." As to the value of the League's co-operation with city officials in curbing the smoke evil, the statistics show that for 1906, the first year when the League was active, there were 193 arrests by the Department of Health on account of smoke. Of this number 132 were convicted, 36 were discharged, and at the end of the year 25 cases remained to be acted upon. In 1905 there were no convictions; in 1904, none; in 1903, 47; in 1902, 17. It may be said that a voluntary association of citizens of this kind helps officials in two ways: in practical co-operation, in securing evidence, etc., and in its proof of the existence of a public sentiment that will uphold official action.

Essex County Park System

THE three most interesting park systems of the United States are probably the Metropolitan of Boston, because of its extraordinary completeness; the South of Chicago, because of the great sociological work which it is doing; and the Essex County of New Jersey, because it was the first county system. Each is the model of its kind. To the September 7 issue of *Charities and the Commons*, Archibald A. Hill, who until a year ago was Secretary of the Metropolitan Parks Association of New York, contributes a valuable illustrated article on the Essex County system. The commission was appointed only eleven years ago. In the meantime there has been secured a remarkable park system that serves the needs of the city of Newark, of a number of small towns, and of intervening rural districts. It is composed of four component parts: (1) large outlying reservations, such as South Mountain and Eagle Rock; (2) large city parks; (3) small or neighborhood parks, and (4) a connecting parkway system. The outlying reservations comprise 3,000 acres, in which no improvements were required except walks and drives. In the city parks the social, or play, function has been especially developed—in Branch Brook Park, Newark, for example, 55 out of the 277 acres are devoted to playfields, and in addition there is an artificial lake a mile long which is used for rowing in summer and skating in winter. In fact the boat houses here and on another of the park lakes are equipped for the storage and care of private boats and canoes at a nominal charge, as well as for the renting of public boats—a fact that vastly increases the popularity of the lakes. There are also warm rooms for the skaters in winter. An interesting feature of the system is that in both large and small city parks the playfields—though the reviewer has never seen any that were more utilized—are beautiful with grass. "In Essex County," says Mr. Hill, "there exists a belief that a barren or neglected playground encourages disorder." Field-houses and shelters, of white or gray stone, red-tiled or roofed with gray cedar shingles, are set in grassy meadows and surrounded by shrubbery and trees. In the whole system only two playgrounds are without grass, and these are mainly designed for the older boys and men in sports that require bare ground. Wading pools for the smaller children are picturesque and popular features, made doubly pleasant and useful by sandy beaches.

The Des Moines Plan

AMONG several of the new plans of municipal government which have been advocated and adopted recently, the latest is known as the Des Moines Plan. In the October *Century*, the idea of this is well stated by Mr. Henry E. Sampson. He considers this the most extraordinary system ever known in the United States and states that it was planned after the system employed by modern business concerns, because of the belief of its framers that private and municipal corporations were fundamentally similar. The first step was centralization of power and the definite fixing of responsibility, obtained by placing the administration of the city's affairs in a governing board of four Councilmen and a Mayor; which board appoints all subordinate officials and employees, and each is at the head of one of the Departments of Public Affairs, Accounts and Finances, Public Safety, Streets and Public Improvements, and Parks and Public Property. This idea is similar to that already adopted at Galveston and elsewhere. Other important provisions are a strict civil service; publicity (monthly financial statements of all departments must be published in the newspapers); adequate salaries as an inducement to men of character and ability; and the initiative, referendum, and recall, which were described in the MUNICIPAL JOURNAL AND ENGINEER several weeks ago. The publicity required is expected to place within the reach of every taxpayer complete information regarding the management of the city's affairs. The Mayor and Councilmen are elected from the city at large, thus eliminating ward lines and the evils of ward politics. All city officials are selected at a non-partisan primary and elected on a non-partisan ticket. By means of the initiative, referendum and recall, the majority of the electors may secure legislation opposed by the governing board, or may block that proposed by said board, and may remove from office at any time an official believed to be incompetent or dishonest. The rights conferred by either of these provisions may be exercised by filing a petition bearing the signatures of 25 per cent. of the voters of the city, following which an election must be ordered and held. In this connection it is interesting to note that a rearrangement of New York's departments is contemplated, the new departments being Public Works, Streets, Fire, Police, Parks, Water Supply and Health.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Periodicals Listed Below

Acetylene Journal, Chicago.
Ainsley's Magazine, New York.
American Academy of Political and Social Science, Annals, Philadelphia.
American Architect, New York.
American Banker, New York.
American Gas Light Journal, New York.
American Homes and Gardens, New York.
American Institute of Architects, Bulletin, New York.
American Institute of Electrical Engineers, New York.
American Magazine, New York.
American Society of Civil Engineers, Proceedings, New York.
Appleton's Magazine, New York.
Architects' and Builders' Journal, Baltimore.
Architects' and Builders' Magazine, New York.
Architectural Record, New York.
Architectural Review, Boston.
Arena, Trenton.
Associated Engineering Societies, Journal, Boston.
Atlantic Monthly, Boston.
Brick, Chicago.
Broadway Magazine, New York.
Canadian Municipal Journal, Montreal.
Cement, New York.
Cement Age, New York.
Century, New York.
Charities, New York.
Clay Record, Chicago.
Clay Worker, Indianapolis.
Collier's Weekly, New York.
Construction News, New York.
Consular-Reports, Washington.
Contract Journal, London.
Cosmopolitan, New York.
Country Life in America, New York.
Craftsman, New York.
Department of Labor, Bulletin, Washington.
Eclectic Magazine, New York.
Electrical Railway Review, Chicago.
Electrical Review, New York.
Electrical World, New York.
Engineer, Chicago.
Engineer, London.
Engineering-Contracting, New York.
Engineering and Mining Journal, New York.
Engineering Magazine, New York.
Engineering News, New York.
Engineering Record, New York.
Engineering Review, New York.
Engineering Soc'y of West. Penn., Pittsburg.
Engineering World, Chicago.
Engineers' Club, Proceedings, Philadelphia.
Everybody's Magazine, New York.
Far Eastern Review, Manila.
Financier, New York.
Fire and Water, New York.
Fireman's Herald, New York.
Forum, New York.
Franklin Institute Journal, Philadelphia.
Gardening, Chicago.
Gesundheits Ingenieur, Munich.
Good Roads, New York.
Harper's Monthly, New York.
Harper's Weekly, New York.
House and Garden, Philadelphia.
House Beautiful, Chicago.
Illuminating Engineer, New York.
Independent, New York.
Indian and Eastern Engineer, Calcutta.
Insurance Engineering, New York.
Iron Age, New York.
Journal of Accountancy, New York.
Leslie's Weekly, New York.
Literary Digest, New York.
Local Government Journal, London.
McClure's Magazine, New York.
Manufacturers' Record, Baltimore.
Metropolitan Magazine, New York.
Moody Magazine, New York.
Municipal Engineering, Indianapolis.
Municipal Journal and Engineer, New York.
Municipal Journal, London.
Municipal World, St. Thomas, Ont.
Munsey's Magazine, New York.
New England Water Works Ass'n Journal, Boston.
North American Review, New York.
Outlook, New York.
Pacific Monthly, Portland, Ore.
Pacific Municipalities, Santa Clara, Cal.
Park and Cemetery, Chicago.
Pearson's Magazine, New York.
People's Magazine, New York.
Popular Science Monthly, New York.
Power, New York.
Preventive Medicine Journal, London.
Progressive Age, New York.
Public Health, London.
Public Service, Chicago.
Putnam's Magazine, New York.
Review of Reviews, New York.
Revista Municipal, Havana.
Rock Products, Louisville.
Sanitary Institute Journal, London.
Scientific American, New York.
Scribner's Magazine, New York.
Smith's Magazine, New York.
Street Railway Journal, New York.
Suburban Life, Boston.
Success, New York.
Sunset, San Francisco.
Surveyor, London.
Technique Sanitaire, Paris.
Times Magazine, New York.
Tradesman, Chattanooga.
Travel Magazine, New York.
Van Norden's Magazine, New York.
Village, Hyde Park, Mass.
Water, London.
Water and Gas Review, New York.
World To-day, Chicago.
Western Municipal News, Winnipeg.
World's Work, New York.

ROADS AND PAVEMENTS

Tar for roads. From Gas World. 1 p. Illustrated. American Gas Light Journal, September 9.

Prevention of Dust and Disintegration on Macadamized Roads in Chicago. 1-2 p. Engineering News, September 19.

Road Construction to Minimize the Dust Nuisance. By Thomas B. Simmons. 1 p. The Surveyor, September 6.

Preventing Road Dust, Notes on the Genesis and Problem of. By B. H. Thwaite. 1 1-2 p. The Contract Journal, September 11.

Reducing Dust and Hardening Roads by Surface Applications. By J. W. Howard. 3 pp. The Surveyor, September 6.

Brick pavements in Paris, Ill. 4 1-2 pp. Illustrated. Municipal Engineering, September.

Evolutions of Street Pavements in Kentucky's Metropolis. 2 pp. Illustrated. The Clay-Worker, September.

Wood Paving. Editorial discussion. 1-3 p. The Contract Journal, August 21.

Asphalt Pavement, Inspection of, in the Borough of Manhattan, New York City. 1-2 p. The Engineering Record, September 21.

Back-Filling Trenches. The full text of form of permit used by the West Chicago Park Commission. 1-2 p. Municipal Journal and Engineer, September 18.

Sidewalk Laying, Municipal Experience in Menasha, Wis. 1-2 p. Municipal Journal and Engineer, September 4.

Imperfections, Street Pavement. Editorial comment on an address of George W. Tillson before the Am. Soc. of C. E. 1-2 p. Municipal Journal and Engineer, September 4.

Baltimore Competitive Pavement Test, Results of. 6 pp. Illustrated. Taxpayer Magazine, August.

Frost and Shade Trees, Effect of on Roads—"The King's Highway." By Reginald Ryves. 2 pp. Illustrated. The Surveyor, August 16.

Wind and Snow, Effect Upon Highways—"The King's Highway." By Reginald Ryves. Conclusion of a series of articles. The Surveyor, August 23.

Sanitary Construction and Maintenance of Suburban Roads. By George W. Chilvers. 1 1-2 pp. The Surveyor, August 23.

Philippines, Permanent Road, Bridge and Building Construction in the. 2 pp. Illustrated. The Far Eastern Review, August.

Grade Crossings, Elimination of, in New York Central Electric Zone. 1 1-2 pp. The Engineering Record, September 7.

Streets, Great, of Great Cities—"Famous Arteries of Travel." Describing the picturesque aspect of. By Aubrey Lanston. 12 pp. Illustrated. The Bohemian, September.

SEWERAGE AND SANITATION

Sewerage Work, Municipal, at Frankfort. 5 pp. Illustrated. Contract Journal, September 4.

Drainage, Crawley (England). 1 p. Illustrated. The Contract Journal, September 4

Suburban Drainage. Suggestions for underdraining. By E. P. Powell. 1-2 p. Suburban Life, September.

Stream Pollution and Water Purification, Some Relations of. Stream pollution and its effect. By Charles Carroll Brown, M. Am. Soc. C. E. 4 pp. Municipal Journal, September.

The Pollution of New York Harbor. By George C. Whipple. Address delivered before the New York County Homeopathic Medical Association. The Surveyor, August 16, 23.

Pipe Sewer, Cost of Trenching, Pipelaying and Back-filling for—Construction at Centreville, Iowa. 3 pp. Engineering-Contracting, September 18.

Constructing Sewer Under the Brooklyn Subway. 2 pp. Illustrated. The Engineering Record, August 31.

Action of Water on Limestone Concrete. Abstract of a paper by M. R. Barnett, before the Institution of Civil Engineers. 1-3 p. Engineering-Contracting, September 11.

Sewage Disposal Results at Berlin, Ont. 1-3 p. The Engineering Record, September 7.

Sewage Treatment Plants Under Construction or Ordered in Pennsylvania. Extracts from an address by F. Herbert Snow, M. Am. Soc. C. E., Engineer of the State Department of Health of Pennsylvania, before the Engineering Society of Western Pennsylvania. 1-2 p. Engineering News, September 5.

Comparative Resumé of the Sewage Purification Tests at Columbus, O. By George W. Fuller. 63 pp. Journal of the Association of Engineering Societies, August.

Sewage Disposal by Biological Processes. By John Duncan Watson, M.Inst. C. E. 2 1-2 pp. Municipal Engineering, September.

Use and Abuse of Sewage Purification Plants. A paper read before the Ohio Engineering Society, by Mr. A. Elliott Kimberly. 3 pp.; The Engineering Record, August 31. 2 pp.; Engineering News, August 29. 3 1-2 pp.; The Surveyor, August 30.

Chemical Precipitation Data. Statistics from the annual report of the City Engineer of Providence, R. I., 1906. 1-2 p. Municipal Journal and Engineer, September 11.

Maintenance of Sewage Filters in Winter. By George G. Bolling. Part of paper read before the Sanitary Section of the Boston Society of Civil Engineers. 1 1-2 pp. American Municipalities, August.

Sanitary Law in London, Administration of. By John Lawrence. 2 pp. The Surveyor, August 30.

Typhoid Communication by Contact. 1-2 p. Municipal Journal and Engineer, September 18.

Scarlet Fever in Relation to Milk Supplies. By William Archibald, M.D., D. P.H. 3 pp. Public Health, September.

Scarlet Fever and Scarlatinal Sore Throat, on an Outbreak of, Due to Infected Milk. By Arthur Newsholme, M.D. 15 pp., with diagrams. Public Health, September.

Infant Mortality Diminishing. Editorial, referring specially to the use of Pasteurized milk. 1-2 p. Municipal Journal and Engineer, September 18.

Milk Supply, Measures to Safeguard in New Bedford. Editorial. 1 p. Charities and The Commons, August 31.

Safeguarding a City's Milk Supply. A description of the methods employed by the Liverpool Corporation in supervising the milk supply of the city. 1 p. The Municipal Journal, August 23.

Pure Ice, the Problem of—Need for Inspection of the Sources of Supply for Cities. By Edward A. Ayers, M.D. 1 p. Illustrated. Collier's Weekly. September 7.

Public Baths and Their Important Place in Sanitation. By C. J. Fox, Ph.D. 2 pp. Illustrated. The Southern Architect and Building News, August 29.

New Baths for South Shields. Features of the new institution described. 2 pp. Illustrated. The Municipal Journal, September 13.

WATER SUPPLY

Water Works System of Worcester, Mass. 2-3 p. Illustrated. Fire and Water Engineering, September 4.

Somerville and the Metropolitan System. 2 pp. Illustrated. Fire and Water Engineering, September 4.

Springfield, Mass., Water Supply. 3-4 p. Illustrated. Fire and Water Engineering, September 4.

Danville Water Works System. 2 pp. Illustrated. Fire and Water Engineering, September 11.

Metropolitan Water Works of Boston, Mass. Distributing reservoirs and pipe lines and sanitary protection. By Caleb Mills Saville, M. Am. Soc. C. E. 4 pp. Illustrated. Municipal Engineering, September.

New Water and Sewerage Systems of Manila. 2 pp. Illustrated. The Engineering Record, September 14.

Small Water Supplies. By H. C. H. Shenton, M. S. E. 1 p. Illustrated. Local Government Journal, September 14.

Ferro-Concrete Reservoirs — Small Water Supplies. By H. C. H. Shenton, M. S. E. 1 p. Illustrated. The Local Government Journal, August 24.

Chicago Water, Conditions of Since Opening of Drainage Canal. 1 p. Real Estate News, September.

Water Purification and Softening Works at New Orleans, La. 3 pp. Illustrated. The Engineering Record, August 31.

McKeesport's Water Softening Plant. Details of process and plant now under construction. Caustic lime and soda ash process. 6 pp. Illustrated. Municipal Journal and Engineer, September 4.

Water Purification by Storage. Abstract of report of the Water Examination Committee of the Metropolitan Water Board of London, England. 1-3 p. Municipal Journal and Engineer, September 4.

Water Filtration Plant of Harrisburg, Pa. 4 pp. Illustrated. Municipal Engineering, September.

Direct and Indirect Methods of Electrical Purification of Water. By Henry Leffman. 11 pp. Illustrated. Journal of the Franklin Institute, September.

The Circular Tanks of the Lancaster Filtration Plant. 1 p. Illustrated. The Engineering Record, September 11.

Covering Filters. Giving an account of experience in Providence, R. I., with ice. 2-3 p. Illustrated. Municipal Journal and Engineer, September 18.

Lime and Magnesia, Estimation of, in Water by Volumetric Methods. By W. T. Burgess, F. I. C. 6 pp. The Chemical Engineer, August.

Meters—Reports from Municipal Water Departments. Compiled by S. Y. High. A table of statistics. Municipal Journal and Engineer, September 11.

Water Meters and Metering in Chicago. Quotations from a report of Walter A. Shaw, Engineer in Charge of the Bureau of Engineering, Department of Public Works, Chicago, 1-3 p. Engineering News, September 5.

Notes on the Meter Question. Abstract from discussion on a paper read at the recent meeting of the New England Water Works Association. 1-3 p. Water and Gas Review, September.

Rates for Water Service. President's address, American Water Works Association. By Dabney Maury, M. Am. Soc. C. E. 3 pp. Municipal Engineering, September.

Reinforced-Concrete Pipes, Methods and Costs of Constructing for Carrying Water Under Pressure. By Chester Wasson Smith. 6 1-2 pp. Illustrated. Engineering-Contracting, September 11, 18.

Steel Pipe Line, a 7-Foot, at St. Louis. 1 p. Illustrated. The Engineering Record, September 7.

Dams, Reconstruction of Masonry for Increase Depth of Storage. Describing work at Lennep, Germany. 1-2 p. Illustrated. Engineering News, August 29.

Completion of the Cross River Dam, Croton Water Works System. 2 pp. Illustrated. The Engineering Record, September 14.

Reservoir, Concrete Power Plant. A description of the New York, New Haven and Hartford Railway Company's reservoir at Cos Cob, Conn. 1-3 p. The Engineering Record, September 21.

Infiltration Intake Under the Ohio River. 1 p. Illustrated. The Engineering Record, August 31.

Laboratory of the New York Board of Water Supply. An account of apparatus and methods, with special reference to compression tests, which are adopted as standard. By James L. Davis. 5 pp. Illustrated. Municipal Journal and Engineer, September 18.

Underground Waters, Detection of Pollution in. 2 pp. Extracts from a paper read before the Association of Water Engineers, by John C. Thresh, M.D., D.Sc. The Engineering Record, September 7.

Reservoir Leak, Repairing a. Quoting from report of City Engineer Otis F. Clapp on experience at Hope Reservoir, Providence, R. I. 2 pp. Illustrated. Municipal Journal and Engineer, September 11.

Flow of Water in Pipes, Circulation and. Abstract of a paper, by Nicholas S. Hill, Jr., read before the American Water Works Association, Toronto. 1 1-2 pp. Illustrated. Fire and Water Engineering, September 4.

Pumping Plant, Economical, of the Omaha Water Company. 1-2 p. The Practical Engineer, September.

Two-Stage Operation of a Large Pumping Engine. By A. O. Doane. 1 p. Illustrated. Engineering News, August 29.

The Snow Steam Pump Works. Illustrated detailed description. 2 1-2 pp. The Engineer, September 2.

Valuation of Water Works Plants. Part of a paper read by Charles B. Burdick before the Wisconsin League of Municipalities, giving an account of the methods used by appraisement boards. 2 1-2 pp. Municipal Journal and Engineer, September 11.

Management of Small Water Works. Some Experiences in the. By Howard L. Williams. Paper read at the American Water Works Convention, Toronto, June 18.

Massachusetts, Water Supply of the State of. A statistical table. 1 p. Fire and Water Engineering, September 4.

STREET LIGHTING AND ELECTRIC POWER

Standards of Light—Primary, Secondary and Working. By Dr. Edward P. Hyde. Paper read at the first annual meeting of the Illuminating Engineering Society, Boston, July 30. 1 1-2 pp. The Progressive Age, September 2.

Present Status of Candle Power Standards for Gas. By C. H. Stone. Paper read before the first annual meeting of the Illuminating Engineering Society, July 30. 2 pp. The Progressive Age, September 2.

Street Lighting, What Is. By M. H. Blood, Jr. 1 1-2 pp. Progressive Age, September 16.

Contracts, Indefinite Obligations in Municipal Lighting. By E. L. Elliot. 3 pp. Municipal Engineering, September.

Illuminating Engineering Society, Proceedings of the First Annual Meeting of the. Boston, July 30-31. 7 pp. Progressive Age, September 16.

Joints, Rigid and Other. From the Gas World. 2 1-2 pp. Illustrated. American Gas Light Journal, September 2.

Gas Lighting from a Hygienic Viewpoint. Extracts from a lecture by Prof. Vivian B. Lewes, F.I.C., F.C.S., before the British Institution of Gas Engineers. 1 p. Engineering News, August 29.

Gas Rates in New York State. By Alton D. Adams. Includes statistics on quantity of gas sold and prices obtained. Municipal Journal and Engineer, September 11.

Electric Lighting in Germany. By Prof. Dr. Phillip G. Klingenberg. 4 pp. Electrical Review, September 21.

Electric Measurements, Report of the British Association Committee on Practical Standards for. 1 p. Electrical Review, September.

FIRE AND POLICE

Juvenile Court—The Swedish System and View of American Experiments. Editorial. 1 p. Charities and The Commons, August 31.

Police of London. Review of the History of the Police of Ancient and Modern Times. Translation of article by L. F. Field in Municipal Journal and Engineer. 1 1-2 pp. Revista Municipal, September 1.

Identifying Criminals by Photographic Measurements. 1-2 p. Illustrated. Literary Digest, September 21.

Spreading of Fire. Illustrations of conflagration dangers in New York City for the past year. 6 pp. Insurance Engineering, September.

Fire Hydrants, Freezing of. Records of frozen hydrants in a number of cities in the winter of 1906-7. 7 pp. Insurance Engineering, September.

Auto, Joplin's Unique. 1-3 p. Illustrated. The Fireman's Herald, August 24.

GOVERNMENT AND FINANCE

Des Moines Plan. By Henry E. Sampson. 1 p. Century, October.

Revenue Features of Chicago's Proposed Charter. By Charles E. Merriam, Chairman Committee on Municipal Revenue, Chicago Charter Convention. 1 1-2 pp. American Municipalities, August.

License Law, the New Jersey City. Full text of law for licensing engineers. 2-3 p. The Practical Engineer, September.

Municipal Reform. By John A. Kasson. From North American Review. 2 pp. American Municipalities, August.

"San Francisco Ferment," the Personality of the Actors in. By "Kew." 6 pp. The Outlook, August 31.

"Fight for Reform in San Francisco." By George Kennan. 13 pp. Illustrated. McClure's, September.

Political Conditions in San Francisco. "The Coming Election in San Francisco." Editorial. 1 p. The Outlook, September 7.

Public Utilities, Concerning. 4 p. Pacific Municipalities, August.

Private vs. **Public** Operation of Gas Companies. By Lucien H. Tyng. The author takes the ground that public ownership means lax management and private ownership increases efficiency of service. 3 pp. Moody's Magazine, August.

Municipal Canal, Gloucestershire's. A review of the financial position of the Thames and Severn Canal, and an account of the present condition of the waterway. 2 pp. The Municipal Journal, August 30.

Bond Sales, Municipal. A tabular statement of sales by cities of less than 100,000 population. 1 1-2 pp. Municipal Journal and Engineer, September 4.

Municipal Bond Issues Explained. By Harry E. Weil. 7 pp. Annals of the American Academy of Political and Social Science, September.

Protection of Municipal Bonds. By Park Terrell. 4 pp. Annals of the American Academy of Political and Social Science, September.

Physical Condition of a Municipality Issuing Bonds. By Harry E. Weil. 5 pp. Annals of the American Academy of Political and Social Science, September.

Depreciation—A Thorny Question. Editorial on a paper read by P. D. Leake, F.C.A., before the Institute of Directors. 1 p. The Surveyor, August 16.

The Question of Depreciation and the Measurement of Expired Outlay on Productive Plant. A plea for the study and use of better methods. By P. D. Leake, F.C.A. 3 pp. The Surveyor, August 16.

Taxation, Impersonal. A discussion of some rights and wrongs of governmental revenue. By Charles Herbert Swan, of the Massachusetts Bar. 149 pp. Annals of the American Academy of Political and Social Science, Supplement, September.

Assessment of Real Estate in the City of New York. By Hon. Lawson Purdy, President of the Department of Taxes and Assessments. 3 1-2 pp. Midland Municipalities, August.

Reports, Standard and Uniform. By Harvey S. Chase. 2 pp. Progressive Age, September 16.

PARKS AND CITY BEAUTY

Parks.—Chicago Park System. Three articles: I. "Park Work, Present and Future, in the South Division"; by Henry G. Foreman, President of the South Park Board; 3 1-2 pp.; illustrated. II. "Progress of the West Parks"; by B. A. Eckhart, President of the West Park Board; 4 pp.; illustrated. III. "The New Lincoln Park"; by Francis T. Simmons, President of the Lincoln Park Board; 3 pp.; illustrated. World To-Day, September.

Essex County (N. J.) Park System. By Archibald A. Hill. 5 pp. Illustrated. Charities and The Commons, September 7.

Playgrounds. "Where New York Children Play"—Real Playgrounds and Makeshifts. By George Calvert. 7 pp. Illustrated. Appleton's, September.

Play and Democracy. 4 pp. By Luther Halsey Gulick. Pacific Municipalities, August.

Civic Beauty and Civic Safety. By Jane Addams. 3 pp. Pacific Municipalities, August.

Beautifying of Chicago, Planning for the—"Making a City Into a Metropolis." By John Rothwell Slater. 9 pp. Illustrated. The World To-Day, September.

King Leopold's Work for Brussels and Its Environs—"The Master Builder of Brabant." By Albert H. Michelson, U. S. Consul, Turin. 19 pp. Illustrated. The Architectural Record, September.

Baron Haussmann and the Topographical Transformation of Paris Under Napoleon III.—Part II. By Edward R. Smith. 12 pp. Illustrated, and with bibliography. The Architectural Record, September.

Boston Cathedral Project. 1 p. Notes and Comments Department, The Architectural Record, September.

Civic Center for Honolulu—"Honolulu Postoffice Site." 3-4 p. Notes and Comments Department, The Architectural Record, September.

Billboards, the Crusade Against. Anecdotes of local efforts. By Clinton Rogers Woodruff. 2 1-2 pp. Review of Reviews, September.

Legislation Against Billboards—"The 'War' Upon." Editorial. 1-2 p. The Village, September.

Taxing in Brazil—"Taxation as a Beautifier." Editorial. By Samuel E. Moffett. 1-4 p. Collier's Weekly, September 14.

Street Trees, Planting and Thinning at East Orange. By F. T. P. Note. Suburban Life, September.

TRAFFIC AND TRANSPORTATION

Traction Development in Philadelphia, Chicago and New York, Unscrupulous Finance in: "Where Did You Get It, Gentlemen?" By Charles Edward Russell. 13 pp. Illustrated. Everybody's, September.

Terminals in New York, Excavations for R. R. Pictures by G. W. Peters. 4 full-page illustrations. The Century, September.

Electric Traction, Notes on. By Geo. Gibbs, M. E. 5 pp. Stevens Institute Indicator, July.

Pay as You Enter Cars and Dispatching System in Chicago. 2 1-2 pp. Illustrated. Electric Railway Review, September 21.

Electric Locomotives, Metropolitan Railway. A description of a type of locomotive supplied by the British Thompson Houston Co. to the Metropolitan Railway Co., London. 2 1-2 pp. Illustrated. Street Railway Journal, September 7.

Rail Sections, Standardization of, of the German Street and Interurban Railway Association. 2 pp. Illustrated. Street Railway Journal, September 14.

Tunnel, Selby Hill Street Railway, St. Paul, Minn. 3 pp.; illustrated; Street Railway Journal, September 21. 3 pp.; Engineering Record, September 21.

Battery Tunnel Under the East River, the Present Condition of the. 1 p. Illustrated. Engineering News, September 19.

Tunnel Operations Under East River, New York. 1 p. Illustrated. The Engineer, September 2.

Standing in Public Vehicles. Referring to Fifth Avenue (New York) stages. 1-2 p. Municipal Journal and Engineer, September 18.

MISCELLANEOUS

Civic Improvements, Notes on. 3 1-2 pp. Notes and Comments Department, The Architectural Record, September.

Village Improvement Societies. Notes by Edward T. Hartman. 3 pp. The Village, September.

"The Tidying of Thomasville, Ga." By Susie Bouchelle Wight. 1 p. Illustrated. Suburban Life, September.

Home Gardening—Work of Cleveland Association. 4 pp. Illustrated. The Village, September.

Work of Northampton, Mass., Home Culture Clubs. 1 p. The Village, September.

School Gardens, Hartford Method for. 3 pp. Illustrated. The Craftsman, September.

Town Planning, the Regulation of. Editorial commenting on an address by J. A. Brodie before the Association of Municipal and County Engineers. The Surveyor, August 16.

Municipal Town Planning and Land Owning. 1 1-2 pp. An account of an address by Dr. Stutten, of Berlin, regarding German experience. Municipal Journal and Engineer, September 18.

German Town Planning. A letter showing detailed work done by Germans in this line. 1-3 p. The Municipal Journal, September 13.

Descriptions of Cities and Towns. Chicago From Various Points of View. About a dozen articles, of which the more important are indexed by as many writers. Special Chicago number, The World To-Day, September.

South Chicago and the Calumet District—"The Coming Capital of American Industry." 4 pp. Illustrated. The World To-Day, September.

Gary, "The Magic City of Steel." By Frederic W. Carr. 5 pp. Illustrated. The World To-Day, September.

Siena, Italy. By Arthur Symons. 11 pp. Illustrated. Scribner's Magazine, September.

San Francisco—The Historic Character of Its People: "Epicurus in the West." By Thomas Robins. 8 pp. Illustrated. Scribner's Magazine, September.

San Francisco as It Now Is. 7 pp. The Outlook, September 21.

Knutsford, England (the "Cranford" of Mrs. Gaskell), a Day in. By Josephine Tozier. 12 pp. Illustrated. Putnam's Monthly, September.

Fayetteville, Ark.—"A City of Many Merits." 2 1-2 pp. Illustrated. The Village, September.

Bismya—"The Oldest City in the World"—Discoveries in Excavating. By Dr. Edgar J. Banks. 9 pp. Illustrated. Putnam's Monthly, September.

Cazenovia, N. Y., the Village of. 3 pp. Illustrated. The Village, September.

Dobbs Ferry, N. Y., a Suburban Village. By Harrison Leroy. 3 pp. Illustrated. The Village, September.

Co-operative Villages—Model Industrial Communities in the United States. By W. D. P. Bliss. 3 1-2 pp. Illustrated. Garden Cities Department, The Village, September.

Chicago Statistics; January to June, 1907: Vol. VII., Nos. 1 and 2. Municipal Administration; Police Statistics; Public Health; Educational; Commerce and Traffic; Chicago's Government. 48 pp. Published by the Bureau of Statistics and Municipal Library.

Housing Progress. An abstract of the official monthly record of the National Housing Reform Congress. 1 p. The Municipal Journal, September 6.

The Operation of the Housing of the Working Classes Act. By Joseph Priestley, B.A., M.D. 4 pp. Public Health, September.

Housing Congress Impressions. By John McCallum. 1-2 p. The Local Government Journal, August 31.

Housing—Reports and Suggestions at the International Congress in London. By Benjamin C. Marsh. 4 pp. Charities and The Commons, September 7.

Poor of London's East End, The—"The Pent and Huddled East." By Vance Thompson. 14 pp. Illustrated. Outing Magazine, September.

Instruction in Civics. An account of a primer for immigrants issued by the Boston School Board. Editorial. 1 p. The Outlook, September 7.

School Festivals, Value and Character of, with special mention of the work of the Ethical Culture Society of New York. By Peter W. Dykema. 9 pp. Illustrated. The Craftsman, September.

Pawnshops, Municipal. Brief abstract of an article by Harbutt Dawson in German Workman. 1-3 p. The Municipal Journal, September 13.

Smoke—Fighting the Nuisance in New York. By John B. Coleman, Attorney for New York Anti-Smoke League. 2 pp. Illustrated. Leslie's Weekly, September 5.

Eliminating Smoke with Locomotives Burning Soft Coal. Abstract of a report presented at the annual meeting of the Travelling Engineers' Association, Chicago, September. 1-2 p. Engineering News, September 19.

Refuse and Revenue. A summary of a year's work of the Glasgow Cleansing Department. 1 p. The Municipal Journal, August 23.

Disposal of Municipal Waste. By W. F. Morse. Deals with high temperature destructors, with cells or with continuous grates. 5 pp. Illustrated. Municipal Journal and Engineer, September 4.

Flood Protection. How Grand Rapids is proceeding to protect herself from the ravages of the Grand River. 1 1-2 pp. Illustrated. Civic News, August 31.

Municipal Matters in Great Britain and America and on the Continent. By B. W. Calder, Ass. M. Inst. C. E., City Surveyor of Prahran, Melbourne, Australia. 2 pp. The Surveyor, September 13.

Municipal Utilities, Observations of an Australian on. Revista Municipal, September 1.

Patented Articles, Municipal Use of. By James M. Head, General Counsel for Warren Bros. Co. A reply to an article by Edgar H. Boles. 3 pp. Municipal Journal and Engineer, September 4.

Bidding on Insufficient Knowledge. Editorial. Bids for Ashokan Dam. 1-2 p. Municipal Journal and Engineer, September 4.

Philadelphia Upheaval of 1905-06, Some Permanent Results of the. By Clinton Rogers Woodruff. 19 pp. The American Journal of Sociology, September.

NEWS OF THE SOCIETIES

League of American Municipalities.—The eleventh annual meeting was opened at Norfolk, Va., September 18, by an address of welcome by J. Taylor Ellison, Lieutenant-Governor of Virginia, and Mayor J. G. Riddick, of Norfolk. President Edward F. Dunne, ex-Mayor of Chicago, responded, reviewing the report of the American Civil Federation special investigation committee, claiming that the report was favorable to municipal ownership. Allan Ripley Foote, of Columbus, President of the National Tax Association, spoke on "Low Rates for Public Service vs. Franchise Taxation," claiming that the most useful tax is the requirement of efficient service. Mayor W. W. Todd, of Jackson, Mich, sent a paper, read by Secretary McVicar, on "Low Rates for Public Service Versus Franchise Taxation," in which it was maintained that public service corporations do not stand a fair share of the taxation.

The second day of the convention was devoted to a discussion of Municipal Government by Commission vs. Mayor and Council. Rear Admiral Francis E. Chadwick, U. S. N., took a decided stand against government by commission, maintaining that the present evils of city government were due to the placing in power of short term men. He said that a change to greater permanency of office, among technical officials particularly, was the primal need. This need is recognized elsewhere. In England, for example, the actual administration is wholly in the hands of technical men. In Germany even greater recognition is given to the business aspect of municipal administration. There a Mayor is a Mayor by profession and may be called from one city to another when he acquires a reputation for efficiency. Admiral Chadwick praised the Newport, R. I., city charter as a return to popular government. There a small body of administrators, six in number, are wholly responsible for government, but the power to make appropriations and taxes rests with a body of 195 members, who are called a Representative Council. James M. Head, of Boston, ex-Mayor of Nashville, spoke in favor of the commission government. William H. Allen, Secretary of the Bureau of Municipal Research, New York City, stated that the Commission movement had at least called serious attention to the defects of existing city charters. He said that it should not be forgotten that the advocates of government by commission have heretofore failed to recognize three fundamental facts: First—Misgovernment in a democracy is due primarily to ignorance on the part of the general public as to official acts and community needs. Second—Misgovernment by commission is possible because the commission plan of itself does not insure intelligence on the part of the general public as to government results and community needs. Third—Hundreds of communities in the United States, including New York City, are now being misgoverned by commissions. Diffusion of accurate knowledge among an intelligent electorate was the most certain guarantee of good government. Commissioner Henry L. West, of the District of Columbia, described the government, of which he is a member.

The last day's session was largely taken up with a discussion of Municipal Ownership. Edward A. Moffit, Secretary of the National Civic Federation's investigating committee of twenty, spoke vice Prof. Frank Parsons, who is an advocate of municipal ownership. Mr. Moffit spoke on the negative side of the question. A paper by N. J. Gordon, of Chicago, Ill., in opposition to municipal ownership, was read by Councilman Young, of Kansas City, Mo. The following resolution was adopted by the convention: "Resolved, That many of the defects and difficulties in the government of American cities result from the refusal of legislatures to grant charters permitting local self-government in matters of purely local concern, and that the utmost liberality in matters of local concern should be insisted upon by all municipalities seeking charters from the State." The League adjourned sine die, after selecting Omaha, Neb., for the 1908 convention. Officers were elected as follows: President, J. Barry Mahool, Mayor of Baltimore; Vice-President, Silas Cook, Mayor of East St. Louis, Ill.; Secretary-Treasurer, John Macvickar, Des Moines, Ia. The trustees include William J. Mosey, Mayor of Fort Wayne, Ind., and Mayor Joyner, Atlanta.

League of Iowa Municipalities.—At the tenth annual meeting of the League at Council Bluffs, Mayor Donald Macrae delivered the welcoming address. Mayor Matterns, of Des Moines, responded, speaking for the most part of the work of the League and the legislation which it had been instrumental in securing. City Engineer Andrew Rosewater, of Omaha, Neb., spoke of street paving, arguing in favor of narrow roadways—from 18 to 30 feet for residence streets. In the discussion which followed the paper in response to questions, Mr. Rosewater spoke highly of the creosoted wooden block pavements in use in east-

ern cities. In a paper on "Taxation," Hon. O. L. Ingledue, Mayor of Marshalltown, said that in improvement assessments, the distinction between general and special benefits was too vague for practical purposes, and results in so much litigation that instances have occurred where attorney's fees actually exceed the cost of the improvement. In speaking of "The Law of Municipal Improvements," B. F. Swisher, City Attorney, of Waterloo, proposed that a law be passed requiring public service companies to file certain specified data with the City Clerk in the city where they operate. H. F. Johnson, Councilman of Pella, spoke in favor of municipal ownership of public utilities. The report of the Paving Committee, written by L. B. Stewart, of Cedar Falls, inclined to favor the use of asphalt for most streets with brick restricted to use on business streets. An address of City Treasurer Frank T. True, of Council Bluffs, on "Revenues," took the ground that city property paid too large a portion of State taxes on account of the low valuation of farm lands. Secretary Pierce, of Marshalltown, reviewed the work of the League and drew some comparisons with the League of California Municipalities. He also stated that the municipal accounting law passed by the last legislature would greatly improve the credit of cities in the money markets.

National Association of Comptrollers and Accountants.—The second annual meeting at Richmond, Va., September 17-19, was a most instructive one and the delegates were accorded the most courteous treatment by the officials and citizens of Richmond. Cities of fifteen States were represented, forty-three delegates in all being present. President Samuel B. Williams, City Comptroller of Rochester, N. Y., spoke on "How Supplies Are Purchased in the Larger Cities," and an interesting discussion of the subject followed. Reports setting forth the amount of interest paid on daily deposits were read, showing, in most instances, that interest ranges from 1½ to 3 per cent. in most places. Louis Betz, City Comptroller, of St. Paul, Minn., was elected President of the association for the coming year. The next meeting place of the association will be decided upon later by the Executive Committee. Either St. Paul, Minn., or Louisville, Ky., is likely to be chosen.

Massachusetts State Firemen's Association.—At the annual convention at Fall River, Chief E. F. Dahill, of New Bedford, spoke on the "Use of Smoke Masks at Fires." He said that he had used several kinds, among them a perforated rubber cap that covers the nose and mouth and into which is fitted a clapper valve and sponge; also a combination of a mouthpiece and a large pair of black goggles; still another type, made of sole leather with a large square of mica, a clapper valve and a sponge. These are all of some value if the sponge is kept wet. Another class, usually called helmets, envelop the whole head with a hose leading from a reservoir containing air or a bellows. This type is useful under the personal direction of a competent officer, but in the hands of incompetent persons is dangerous to the wearer who goes into a burning building. The association elected the following officers for one year: President, Chief William C. Davol, of Fall River; Secretary, D. Arthur Burt, of Taunton; Treasurer, Superintendent H. R. Williamson, of Worcester; First Vice-President, Chief Thomas A. Harris, of Lynn; Second Vice-President, Chief T. F. Murnane, of Fitchburg; Honorary Vice-President, Walter M. Snow, of Middleboro, and Chief George L. Johnson, of Waltham; Captain A. P. Gorman, of Gloucester; Lieutenant J. W. Manly, of Boston; Henry S. Montgomery, of North Adams; Captain J. E. Kennington, of Worcester; Assistant Chief Patrick J. Riley, of Holyoke; directors for three years: Captain J. F. McClintock, of Lowell, and Captain Burton Steere, of Springfield; Commissioner of $15,000 Relief Fund, Chief E. S. Hosmer, of Lowell; Delegate to International Convention of Fire Engineers, Chief William C. Davol, of Fall River; Sergeant at Arms, Chief Frank O. Whitmarsh, of Braintree.

New Hampshire State Firemen's Association.—The convention was called to order in the Moulton Opera House, Laconia, N. H., September 25, by President Ned F. Bunton, of Franklin. Mayor William F. Knight delivered the address of welcome; Councillor S. S. Jewett, of Laconia, also gave a most interesting talk. Secretary George L. Osgood, of Concord, read the records of the last convention and the report for the past year. The report of the treasurer, John D. Randall, of Portsmouth, gave the total funds of the association as $6,690. F. O. Shelley, of Newport, gave a short talk on the firemen's pension bill that was passed at the last session of the legislature. After a parade of the visiting delegates and the local Fire Department, the annual election was held and the following officers chosen: President, Chief Engineer A. W. Spring, of Laconia; First Vice-President, W. F. Barnes, of Nashua; Second Vice-President, L. A. Nimms, of Keene; Third Vice-President, B. W. Josselyn, of Lebanon; Fourth Vice-President, E. C. Young, of Littleton; Fifth Vice-President, F. S. Willey, of Laconia; Sixth Vice-President, C. E. Mitchell, of Dover; Secretary, George L. Osgood, of Concord; Treasurer, John D. Randall, of Portsmouth; Member of Executive Committee for three years, George F. Whitney, of Nashua; Member of Executive Committee for three years, P. J. Sheridan, of Claremont; Member of Executive Committee for two years, D. J. Buckley, of Somersworth; Sergeant at Arms, Joseph Stoneham, of Boscawen.

Empire State Gas and Electric Association.—A joint meeting and reception under the auspices of the Street Railway Association of the State of New York and the Empire State Gas and Electric Association was held in the Concert Hall of Madison Square Garden on the evening of October 1. The following addresses were delivered: Frank M. Stevens, Chairman of the Public Service Commission, second district, "The Work of the Public Service Commission, and Its Policies With Relation to the Corporations Under Its Supervision." Henry W. Pierce, President, International Railway Co., "The Electric Railway Situation of To-day." Dr. Alexander C. Humphries, President, Stevens Institute of Technology, "Control of Gas Companies by State Commissions." Everett M. Burdett, Chairman, National Electric Light Association, "Public Control from the Corporate Standpoint." The Electrical Show, to be held in Madison Square Garden from September 30 to October 5, will be open to all who desire to attend and passes will be furnished upon request. The following papers will be read at subsequent meetings: R. M. Searle, "The Meter Testing Situation and Report of Meter Committee." Alfred E. Forstall, "Gas Standards." E. L. Elliott, "Buying Light." L. T. Palmer, "Franchise Taxation." W. W. Cole, "The Agitation for Underground Distribution in Place of Overhead." Glenn Marston, "Municipal Ownership in New York State."

Municipal Engineers of the City of New York.—The first meeting of the season was held September 25 at the Engineering Societies' Building, 29 West Thirty-ninth street, Manhattan. Mr. Edward H. Holden, Assistant Engineer Topographical Bureau, the Bronx, presented a paper entitled "Transverse Work in Connection with Triangulation of the Bronx Borough, New York City." A lunch was served, applications for membership received and a meeting of the Board held in the society's quarters, rooms 712 and 714.

Western Society of Engineers.—At the meeting at the society's rooms, in Chicago, September 18, Mr. H. Kreisinger presented a paper, written jointly by himself and Mr. W. T. Ray, on "The Nature of True Boiler Efficiency." The paper was an abstract of a bulletin to be issued by the Steam Engineering Division of the U. S. Geological Survey, and dealt mainly with laboratory experiments made to determine the laws which govern heat absorption by boilers.

Calendar of Meetings

September 30-October 4.
American Public Health Association.—Thirty-fifth annual meeting, Atlantic City, N. J.—Dr. Charles O. Probst, Secretary, Columbus, O.

October 1-4.
Pennsylvania State Firemen's Association.—Convention and tournament, Pittsburg, Pa.—W. W. Wunder, Secretary, Reading, Pa.

October 1-4.
American Society of Municipal Improvements.—Annual convention, Detroit, Mich.—George W. Tillson, Secretary, 831 Ocean avenue, Brooklyn, N. Y.

October 8-11.
International Association of Fire Engineers.—Thirty-fifth Annual Convention, Washington, D. C.—James McFall, Secretary, Roanoke, Va.

October 10-12.
American Electro-Chemical Society.—Fall meeting, Chemists' Club, 108 West 55th street, New York City.—Dr. Joseph W. Richards, Lehigh University, South Bethlehem, Pa.

October 14-16.
American Street and Interurban Railway Engineering Association.—Annual convention, Atlantic City, N. J.—S. W. Mower, Secretary, Southwestern Traction Co., London, Ont.

October 14-18.
American Street and Interurban Railway Association.—Annual convention, Atlantic City, N. J.—B. V. Swenson, Secretary, Engineering Societies Building, 33 West Thirty-ninth street, New York.

October 15-17.
Southern New York Firemen's Association.—Convention and tournament, Greenport, N. Y.—J. H. Downing, Secretary, 211 Duffield street, Brooklyn, N. Y.

October 15-17.
Association of Railway Superintendents of Bridges and Buildings.—Annual meeting, Milwaukee, Wis.—S. F. Patterson, Secretary, Concord, N. H.

October 16-18.
American Gas Institute.—Second annual meeting, Washington, D. C.—Jas. W. Dunbar, Secretary, New Albany, Ind.

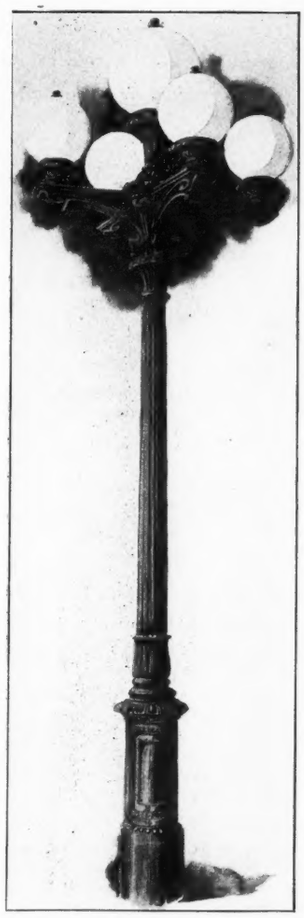
November 12.
National Tax Association.—Conference, Columbus, O.

November 19.
National Municipal League.—Annual convention, Providence, R. I. (in conjunction with the American Civic Association).—Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

December 26.
International Sanitary Convention of American Republics.—Third international meeting, Mexico City.—Surgeon General Walter Wyman, Chairman International Sanitary Bureau, Public Health and Marine Hospital Service, Washington, D. C.

MUNICIPAL DEVICES

The San Jose Electrolier.—"The handsomest electrolier in the United States" is the claim made for a design of a special cluster light standard which has been adopted for use in the City of San Jose, Cal., and will soon be set up on First street. A well-proportioned column supports four 32-candlepower incandescent lights on cross arms, the column extended supporting a fifth. The color scheme will be a deep bronze, with high lights done in copper green, giving the appearance of age. The globes to be placed about the lights will be of special pattern, having caps at the top for ventilation, as well as for the purpose of lessening the danger of breakage from uneven heating. The electrolier is made by the Joshua Hendy Iron Works, 63 Front street, San Francisco, Cal., whose works are at Sunnyvale, and was accepted by the City Council on recommendation of a committee of merchants and property owners. There was a large assortment presented for consideration, bids for some of which were slightly lower than $125, which is to be paid, but the design chosen was considered the most artistic, and the equipment of the company is such that the work can be turned out in a finished state in short order.



Apparatus for Fighting Fires

SEVERAL improvements in fire apparatus have recently been put on the market by the Seagrave Company, Columbus, O. Perhaps the most interesting of these is the rapid-raising water tower built for the New York City Fire Department. This was recently given a trial by the Columbus Fire Department before shipment, when it was considered a distinct advance in the construction of fire apparatus. One man, with the assistance of the springs, can, it is said, raise the tower to a vertical position in five seconds. The stream may be directed by one operator. The tower is pivoted on a ball-bearing turntable fitted with a gear, by means of which the operator revolves it without leaving the table. The automobile combination apparatus, which was built, chassis and all, for fire service, has been given a severe practical test and was found not wanting. A hundred-mile ride over rough roads with a heavy load was accomplished without mishap in quick time. The aerial truck made by this company has recently been modified in design, so that the aerial ladder is carried about 18 inches above the turntable, making it, when stowed away, of about the same height as the ordinary service truck. This gives greater stability in traveling.

Fire Hose

THE Eureka Fire Hose Company, 13 Barclay Street, New York City, publishes an attractive folder setting forth the merits of its goods. Its principal brands are the "Eureka," "Paragon" and "Red Cross." The "Eureka" is a four-ply, rubber lined, seamless, solid woven, multiple hose, weighing in the 2½-inch size about 60 pounds per length of 50 feet. The "Paragon" is similar in all respects to the "Eureka" except that it has three instead of four plies, and contains the smooth interior feature and weighs about 55 pounds per length of 50 feet. The "Red Cross" is a two-ply hose, has the smooth interior ply and weighs about 50 pounds per section of 50 feet.

Portable Wattmeter Calibrator

A DEVICE for calibrating wattmeters quickly, without impairing the accuracy of the result, has been devised and placed on the market by the Fort Wayne Electrical Works. Besides effecting a saving as compared with the use of standard indicating instruments and a stop-watch, as commonly employed, this instrument will register correctly with a variable load. An observation of the revolutions of the meter tested and of the dial of the calibrator will, by the use of proper constants, give the desired result. The range of most meters in service from light to full load, either for 110 or 220 volts, two or three wire circuits, is covered by the operation of this invention. As to the instrument itself, it is enclosed in a mahogany case, with a carrying strap for the convenience of the inspector in transportation, and a lock prevents tampering by unauthorized persons. The register is located at the top, so that the hands can be seen at a distance, as, for example, when the operator is reading a meter placed near a ceiling. Three pointers indicate, respectively, units, tens and hundreds. A thumb-screw, in front of the dial, is used for raising the hands and locking them firmly in transportation. A terminal plate on top, at the back, contains four current binding posts, to which the current coils of the calibrator are connected. Plug switches on this plate are for the purpose of changing the current capacity of the instrument. The current coils are wound in sections, which may be connected parallel with the plug switches, or in parallel with the plug switches in conjunction with cable connectors on the current leads. There are also two potential receptacles, one for the use of 110 volts and the other for 220 volts. There are also two one-ampere fuses to protect the one-ampere winding. The current leads have small punched terminals marked A, B, C, D for connecting the binding posts of the calibrator. The other ends of the current leads have cable connectors, stamped M, N, R and S. The potential leads have plugs at the calibrator ends and spring clips for connection to the line. In series with the leads is a pendant snap switch for controlling the shunt circuit and rotation of the calibrator. Plus and minus marks are made in the proper places on the connectors. The bearing, located in the top plate, is accessible and easily removed for inspection. The lower bearing is a cup diamond jewel set on a spring. The entire calibrator may be lifted out of the case, so as to make every part accessible.

WATTMETER CALIBRATOR

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewage, Water Supply and Public Lighting—Fire Equipment and Supplies—Buildings, Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Street Improvements				
New York	Brooklyn	October 2	Laying 11,385 sq. yds. asphalt, 102,950 sq. ft. cement walk, 17,215 ft. curb	Bird S. Coler, Boro. Pres.
Indiana	Evansville	October 3, 2 P.M.	Constructing Henderson Co. road in Union Township	Harry Stinson, County Auditor.
Pennsylvania	Philadelphia	October 3	Constructing drive in Cresheim Valley	Jesse T. Voddes, Fairmount Park.
Missouri	St. Louis	October 3	Paving, curbing, etc., certain streets	A. J. O'Reilly, Pres. Bd. Pub. Twp.
Pennsylvania	Harrisburg	October 3	Constructing road 1 mile long, 16 ft. wide, Londonderry Twp.; 2 sections, 11,955 and 6,687 ft. long, 15 ft. wide, Benson Twp.	Jos. W. Hunter, Highway Com'r.
New York	Brooklyn	October 3	Repairing asphalt pavement, resurfacing walks, etc., in parks	Park Department.
Ohio	Chillicothe	October 4	Constructing cement walk, curb and gutter, several streets	Chas. Hermann, Pres. B. P. S.
Ohio	Cleveland	October 5, 11 A.M.	Completion of Miles avenue improvement	A. B. Lea, County Surveyor.
Indiana	Gary	October 5, 3 P.M.	Grading, paving, curbing, etc., S. Broadway and Madison St.	C. O. Holmes, Clk. Bd. Trus.
Illinois	Brussels	October 5, 7 P.M.	Laying 3,500 sq. yds. granitoid sidewalks	S. Fortschneider, Village Clerk.
Kansas	Wichita	October 6, 5 P.M.	Furn. 20,000 cotton wood blocks, 6x6x5 in., for paving Fire Station	R. N. Dorr, City Clerk.
Indiana	Decatur	October 7, 10 A.M.	Constructing macadam road in Root township	C. D. Lewton, County Auditor.
Connecticut	Hartford	October 7, 11 A.M.	Laying 7,000 sq. yds. asphalt on concrete, Asylum St	Fred. L. Ford, City Engineer.
Indiana	Sullivan	October 7, noon	Constructing 3 gravel roads, 30,680 ft. long, Haddon Township	E. E. Russell, County Auditor.
Indiana	Brookside	October 7, 1 P.M.	Constructing highway 2 miles and 3,573 ft. long	Charles Miller, County Auditor.
Indiana	Salem	October 7, 1:30 P.M.	Gravel roads: 24,165 ft. Washington twp., cost, $11,949; also 6,733 ft. Monroe twp., cost, $3,914	S. G. Ellis, County Auditor.
Wisconsin	Kenosha	October 7, 2 P.M.	Grading, paving 34,650 sq. yds. brick on concrete, 17,329 ft. stone curb, and 12,175 cu. yds. excavation	R. H. Moth, City Engineer.
Indiana	Columbus	October 7, 7:30 P.M.	Grading, graveling and laying cement walks and curbs	Wm. H. Rights, City Engineer.
New Jersey	New Brunswick	October 7, 8 P.M.	Paving Dennis St., from Hiram to Richmond	Fred Schneider, City Engineer.
Indiana	Hartford City	October 7	Constructing 10,465 ft. and 15,185 ft. macadam road, Harrison twp.; also 15,775 ft. on line between two townships	L. W. Dougherty, County Auditor.
Indiana	Logansport	October 8, 10 A.M.	Constructing gravel road in Jackson Township	Geo. W. Cann, Co. Auditor.
New York	New York	October 8, noon	Paving 20,300 sq. yds. macadam; 5,750 brick; 10,100 lin. ft. cement curb, etc.; furn. 1,400 tons 1½-in. broken stone and screenings	Geo. Cromwell, Boro. Richmond.
Indiana	Monticello	October 8, noon	Constructing gravel road in Prairie Township	J. L. Ackerman, County Auditor.
Missouri	St. Louis	October 8, noon	Paving portions of numerous streets and alleys	A. J. O'Reilly, Pres. Bd. Pub. Imp't
Indiana	Vincennes	October 8, noon	Constructing 8,000 ft. of gravel road	J. L. Ackerman, County Auditor.
Missouri	St. Louis	October 8, noon	Improving streets, etc., 36 lettings	A. J. O'Reilly, Pres. Bd. Pub. Impt.
Indiana	Crawfordsville	October 8, 1 P.M.	Constructing stone road, 13,253 ft. long, in Brown township	Benj. F. Cornum, Co. Auditor.
Indiana	Rockville	October 8, 1 P.M.	Constructing gravel road, Adams; macadam road, Florida Twp.	H. A. Henderson, County Auditor.
Indiana	Covington	October 8, 1:30 P.M.	Constructing four gravel roads	County Auditor.
Indiana	Martinsville	October 8, 2 P.M.	Constructing 2 gravel roads in Washington Township	County Commissioners.
Indiana	Portland	October 8, 2 P.M.	Constructing 15 gravel roads	County Commissioners.
Pennsylvania	McKeesport	October 8, 4 P.M.	Brick paving, curb, grade, Scott, 12th, S. Soles Streets	C. E. Soles, City Comptroller.
Illinois	Glencoe	October 8, 8 P.M.	Grading, draining, paving, etc., Central Ave., 1,595 sq. yds. 3-course macadam; 1,400 yds. excavation; 1,500 ft. 4-in. 300, ft. 6-in. drain, etc.	F. A. Windes, Winnetka, Eng'r.
Florida	Palatka	October 8	Laying 25,000 sq. yds. brick; 1,000 lin. ft. granite curb	J. E. Craig, City Engineer.
Indiana	Bluffton	October 9, 10:30 A.M.	Constructing 2 gravel roads, Jefferson and Lancaster Twps.	C. D. Brineman, County Auditor.
New York	Brooklyn	October 9, 11 A.M.	Regulating, grading, paving, etc., various streets	Bird S. Coler, Boro. Pres.
Pennsylvania	Harrisburg	October 9	Constructing road 1,800 ft. long, 18 ft. wide, of brick, and 2 roads 4,300 and 2,500 ft. long, 22 ft. wide, Reynoldsville Boro.; 13,200 ft. long, 16 ft. wide, Buffalo twp.; 21,507 ft. long, 16 ft. wide, Winslow Twp	Jos. W. Hunter, Highway Com'r.
Ohio	Youngstown	October 10, noon	Grading Falls Avenue from Hillman to Edwards Street	W. H. McMillin, Clk. Bd. Pub. Ser
Pennsylvania	Harrisburg	October 10	Constructing 3 roads, 16 ft. wide, 21,538 ft. long, N. Huntington Twp.; 11,445 ft. long, Shirley Twp.; 1 mile long, German Twp.	Jos. W. Hunter, Highway Com'r.
Ohio	Cincinnati	October 11, noon	Constructing County roads in Section No. 600	Stanley Stugley, Pres. Board.
Oklahoma	Enid	October 11, noon	Asphalt paving, 11,500 sq. yds.; grading, curbing, etc.	C. H. Sexton, City Engineer.
Alabama	Riverton	October 12, 11 A.M.	Paving, riprap and excavation at Colbert Shoals Canal	Maj. Wm. W. Harts, Eng. Corps.
Indiana	Fort Wayne	October 12, 11 A.M.	Constructing 6,020 ft. macadam road, Monroe township	Geo. W. Lindemuth, Co. Auditor.
Alabama	Athens	October 12	Constructing certain highways	C. D. Glaze, Pres. Road Com'n.
Ohio	East Cleveland	October 12	Constructing culvert on Pitney Road	A. B. Lea, County Surveyor.
Indiana	Sunman	October 14, 6 P.M.	Laying cement sidewalks	E. R. Behlmer, Town Clerk.
Hawaii	Honolulu	October 15, noon	Furnishing 14,000 bbls. Portland cement; 16,500 tons broken stone and 7,000 tons sand	Capt. C. W. Orwell, Eng'r Corps.
Florida	Ocala	October 15	Laying 14,901 sq. yds. vitrified brick pavement	S. Sistrunk, City Clerk.
Delaware	Wilmington	October 15	Constructing road in New Castle Hundred, 2⅜ miles long	F. A. Price, Highway Com'r.
Ontario	Ottawa	October 16	Constructing asphalt and bituminous paving plant	N. J. Ker, City Engineer.
Arkansas	Ft. Logan H. Root	October 17	Constructing 2-pipe concrete road culvert	Quartermaster.
Indiana	Logansport	October 21, noon	Constructing Rice road of gravel, between Cass and Carroll Co's.	Geo. W. Cann, Co. Auditor.
Ohio	Mount Healthy	October 27	Constructing cement walks in St. Joseph street	Frank Williamson, Village Clerk.
Water Supply				
Indiana	South Bend	October 4	Making water connections in three streets	A. J. Hammond, City Engineer.
Illinois	Kewanee	October 5, noon	Furnishing pumping machinery, including steel tower, walking beam, pump rods, power pump, engine, etc.	J. C. Bannister, Chm. Water Com.
Washington	Seattle	October 5	Constructing mains in N. and W. 80th St.; cost, $17,100	C. B. Bagley, Sec'y Bd. Pub. Works.
West Virginia	Union	October 5	Furnishing 7,500 ft. 5-in., 900 ft. 4-in. pipe, hydrants, valves, etc.	Town Council.
Mississippi	Newton	October 7, 2 P.M.	Furnishing material and constructing water works system	X. A. Kramer, Magnolia, Engr.
Illinois	Lockport	October 7	Laying 1,000 ft. 4-in. water main, hydrants, etc.	Daniel F. Fischer, City Clerk.
Colorado	Canon City	October 7	Bldg. reservoir at Cottonwood Creek; also ext. pipe line to city.	C. L. Mitten, City Engineer.
North Carolina	Fort Caswell	October 9, 11 A.M.	Building pump-house, ice plant and cold storage	L. Cravens, Quartermaster.
North Dakota	Fargo	October 9, noon	Constructing pneumatic water plant at Co. Hospital	Arthur G. Lewis, County Auditor.
Delaware	Fort Du Pont	October 10, 11 A.M.	Remodeling water system; also building 150,000-gal. tank	Capt. J. L. Knowlton, Q. M.
Iowa	Primghar	October 10, 8 P.M.	Constructing water works for city	M. Tschirzi & Son, Dubuque, Engrs.
Rhode Island	Warren	October 12, noon	Constructing 3 filters, ¼ acre each; sediment action basin and filter basin, inc. foundation for pumping station; also pumping station, boilers, etc.; cost, $125,000	Chas. H. Manchester, Sec'y Bristol & Warren Water Works.
Ohio	Ashland	October 14	Furn. 350 tons c. i. pipe, digging trench and laying 8,500 ft. pipe; also erecting bldgs. at pumping station; bldg. foundations for new machinery; furn. 14,000 lbs. pig lead	Board of Public Affairs.
Georgia	Atlanta	October 23, 4 P.M.	Furn. and erecting, complete, sectional washing pressure filter plant of 8 units, each 8 ft. diam. and 20 ft. long, 4,000,000 gals.	Park Woodward, Bd. Water Comrs.
India	Rangoon	October 31	Pumping plant, in duplicate, capable of raising 10,000 gals. per minute, 220 ft. for the municipality	Ogilvy, Gillanders & Co., 67 Sun Court, Cornhill, London E.C., Eng.

Water Supply—*Continued.*

Maryland	Berlin	October 31	Franchise for water works, electric light and ice plant	Orlando Harrison, Mayor.
Arizona	Tucson	November 4	Furn. material and constructing water works system	Frank S. Treat, City Recorder.

Sewerage

Illinois	Chicago	October 3, 11 A.M.	Constructing chimney, 95th St. pumping station	John J. Hanberg, Com'r Pub. Wks.
Minnesota	St. Paul	October 3, 2 P.M.	Constructing sewer in Goff Avenue	R. L. Gorman, Clk. Bd. Pub. Wks.
Pennsylvania	North Braddock	October 3, 3 P.M.	Constructing 650 ft. 12-in., 480 ft. 8-in., 200 ft. 6-in. pipe sewer	C. A. Stewart, Boro. Engineer.
Illinois	Berwyn	October 3, 8 P.M.	Constructing pipe sewer, to cost $4,909	R. F. Stevens, Sec'y Bd. Local Ip't.
Florida	Fort Dade	October 3, 8 P.M.	Repair and extension to sewer outlet	Constructing Quartermaster.
Alabama	Jasper	October 3	Constructing $15,000 sanitary sewerage system	P. Byrne, Consulting Engineer.
Ohio	Columbus	October 4	Constructing East Side Sewage Pumping Station, and connections, inc. large quantity curb, concrete, steel, plumbing, etc., estimated cost, $50,000	E. F. McGuire, Secy. Bd. Pub.Serv.
Illinois	East St. Louis	October 5, noon	Constructing 20,300 lin. ft. ditch, 30 ft. base; 43,100 ft. 20 ft. base; 16,600 ft. 10 ft. base, inc. 1,000,000 cu. yds. excavation.	F. B. Harding, Clk. Drainage Bd.
New Jersey	Englewood	October 5, 3 P.M.	Constructing 6,590 ft. 12-in. pipe sewer	Englewood Sewerage Co.
Arizona	Bisbee	October 5, 7:30 P.M.	Constructing a sewer system for city	Olmstead & Gillelan, Los Angeles, Cal.
Washington	Seattle	October 5	Sewers Hiawatha Pl., cost $7,100; N. 39th St., cost, $23,500	C. B. Bagley, Sec'y Bd. Pub. Wks.
New York	Rome	October 7, noon	Installing sewage disposal plant, etc., Custodial Asylum	Jas. A. Douglas, Pres. Bd. Mgrs.
Minnesota	St. Paul	October 7, 2 P.M.	Constructing sewer on R. R. right of way and Case St.	R. L. Gorman, Clk. Bd. Pub. Wks.
Indiana	Linton	October 7, 4 P.M.	Constructing sanitary sewer system, 13 miles long, with sewage disposal plant; estimated cost, $64,800	Fred Cunningham, City Eng'r.
Mississippi	Vicksburg	October 7, 7:30 P.M.	Constructing storm sewer in South Washington Street	H. J. Trowbridge, City Clerk.
Pennsylvania	Chester	October 7, 7:30 P.M.	Constructing 3-ft. brick sewer Central Ave. from 4th St. to Delaware River	Sam'l McClure, Chm. Sewer Com'n.
Indiana	Indianapolis	October 7	Constructing E. Michigan St. sewer; cost, $146,000 of concrete, brick, pipe, from 12-in. to 7 ft. in diameter	Blaine Miller, City Engineer.
Iowa	Muscatine	October 8	Furn. and placing c. i. pipe at Cross Leaves, Section 5	A. S. Lawrence, County Auditor.
New York	Troy	October 8	Constructing sewer in Park View Court	Elias P. Mann, Mayor.
Indiana	Normal City	October 8	Constructing main outlet sewer	J. G. Mendenhall, Clk. B. P. W.
New York	New York	October 8	Constructing temporary sewers, 3 sts., relaying, extending sewer, inc. 6,413 ft. 6-8-in. vit. pipe; 372 ft. 12-in. c. i. pipe, etc.	Geo. Cromwell, Boro. Richmond.
Delaware	Fort Du Pont	October 10, 11 A.M.	Remodeling sewer and water systems, etc.	Capt. J. L. Knowlton, Q. M.
Pennsylvania	McKeesport	October 10, 4 P.M.	Constructing 370 ft. 15-in. terro cotta sewer, in two streets	C. E. Soles, City Comptroller.
Indiana	Aurora	October 11	Constructing 6 to 20-in. vit. pipe sewer, etc., Dist. No. 1; cost, $12,500	Fred D. Johnston, City Clerk.
Washington	Seattle	October 12	Constructing Green Lake section, $750,000, of north trunk sewer; total cost, $2,325,000, inc. 2 miles of tunneling	R. H. Thomson, City Engineer.
Ohio	Steubenville	October 14, noon	Constructing sewer in Clinton Street, 232 ft. 36-in., 1,126 ft. 30-in. brick sewer, and 1,721 ft. 12- to 24-in. pipe sewer	T. W. Vance, Clk. Bd. Pub. Service.
Missouri	Carthage	October 14, 4 P.M.	Constructing 3,258 ft. 8-in., 410 ft. 10-in. sewers, manholes, etc.	Wm. Kohlman, City Engineer.
Ohio	Chagrin Falls	October 14	Constructing sewerage system sewerage purification plant, sand filters, etc.; cost, $60,000	W. P. Rice Eng. Co., Cleveland.
Tennessee	Chattanooga	October 15, 2:30 P.M.	Constructing brick main sewer, etc., Chestnut St., inc. 465 ft. 36x54-in., 465 ft. 38x57-in., 468 ft. 42x63-in., 466 ft. 46x69-in., 2,032 ft. 50x75-in. egg-shaped sewer, and 175 ft. 60-in. circular sewer	Robert Hooke, City Engineer.
Ohio	Steubenville	October 21	Constructing 18-in. pipe in Wells Street	T. W. Vance, Clk. Bd. Pub. Service.
Utah	Vintah & Ouray Agency	October 23, 2 P.M.	Labor and material for complete sewer system	Agency.

Public Buildings

New Jersey	Bayonne	October 3, 8:30 P.M.	Constructing public school No. 9	A. C. Longyear, N. Y. City, Arch.
Florida	Marianna	October 3	Constructing a school	J. C. Folson, Chm. Bldg. Com.
Wisconsin	Milwaukee	October 4, 10:30 A.M.	Constructing Detention Hospital; separate bids	C. J. Poetsch, City Engineer.
Ohio	Cleveland	October 4	Erecting Zoological Bldg., Brookville Park; cost, $40,000	A. J. Callow, Sec'y Bd. Pub. Service.
Wisconsin	Milwaukee	October 5, 10:30 A.M.	Furn. and installing steam heating apparatus, Engine House No. 18	C. J. Poetsch, City Engineer.
Ohio	Mt. Healthy	October 5, noon	Erecting two school houses, Springfield Township	Wm. Fischvogt, Clk. Bd. Education.
Louisiana	New Orleans	October 5	Hot water heating plant at Naval Station; cost, $25,000	Commandant.
Wisconsin	De Pere	October 5	Plans for 3-story and basement Court House and 2-story basement jail, fireproof, complete; cost, $300,000	Special Bldg. Com. County Board.
Indiana	Decatur	October 7, 10 A.M.	Installing steam heat plant in County Jail	County Commissioners.
New York	Fort Slocum	October 7, 10:45 A.M.	Erecting, plumbing, etc., seven buildings, inc. hospital	Constructing Quartermaster.
New York	New York	October 7, 2 P.M.	Excavating and building armory for Second Battery, in Bronx	Geo. B. McClellan, Mayor.
Maryland	Baltimore	October 7, 3 P.M.	Erecting and mechanical equipment, Federal Building	James Knox Taylor, Wash., D. C.
Ohio	Massillon	October 7	Furn. and installing furnaces or mechanical stokers for 4 Heine boilers, 150 h.p. each, in batteries of two for hospital	Dr. H. C. Eyman, Sec'y State Hosp.
New York	Buffalo	October 8, 11 A.M.	Installing hot-water heating systems, four fire houses	F. G. Ward, Com. Pub. Works.
Indiana	Paoli	October 8, 2 P.M.	Repairs to County Court House	County Commissioners.
Massachusetts	Salem	October 8, 7 P.M.	Erecting new high school; heating, ventilating, etc.	Kilham & Hopkins, Boston, Arch'ts.
Iowa	Des Moines	October 8	Enlarging and improving Fire Station No. 11; also plumbing, etc.	W. W. Wise, Bd. Pub. Works.
New York	Troy	October 8	Furnishing desks, seats, etc., addition to School No. 16	Elias P. Mann, Mayor.
North Dakota	La Moure	October 9, 10 A.M.	Plans and specifications for Court House, $60,000 to $100,000	E. W. Field, County Auditor.
Arizona	Whipple Bar'cks.	October 12, 10 A.M.	Constructing a post hospital	Capt. Chas. C. Walcutt, Jr.
California	San Diego	October 14, 7:30 P.M.	Erecting brick or rein. concrete school building, 16 rooms	H. L. Gay, Architect.
Wisconsin	Green Bay	October 15, noon	Erecting Court House, County jail and Sheriff's residence of stone and brick; to cost $300,000	E. S. Hall, County Clerk.
Arkansas	Osceola	October 15, noon	Erecting $25,000 school building	L. M. Weathers Co., Memphis, Tenn., Architects.
California	Los Angeles	October 15, 2 P.M.	Extension to Nurses' Home at County Hospital	C. G. Keyes, County Clerk.
Pennsylvania	Indiana	October 15	Plans, etc., for 2-story school, 16 rooms, inc. assembly hall, etc., heating, plumbing, electric wiring; cost, $65,000	Oliver Foy, Sec'y School Board.
Ohio	Youngstown	October 15	Erecting 4-story granite Court House, 237 x 136 ft. for Mahoning County; estimated cost, $1,000,000	Owsley & Boucherle, Architects.
Pennsylvania	Harrisburg	October 16, noon	Erecting two buildings, State Lunatic Asylum	J. Dempwolf, York, Arch.
Ohio	Springfield	October 16, 3 P.M.	Erecting, complete, U. S. Post Office	James Knox Taylor, Wash., D. C.
Iowa	Sheldon	October 16	Furnishing material and erecting a public library	Henry Shipley, Pres. Library Bd.
Georgia	Fort McPherson	October 17, 11 A.M.	Constructing brick stable for 76 horses and wagon shed	Lt. W. E. Holliday, Q. M.
Illinois	Peoria	October 17, 3 P.M.	Erecting extension and remodeling Federal Building	James Knox Taylor, Wash., D. C.
New Jersey	Metuchen	October 17	Erecting 11-room brick school	Walker & Morris, Architects.
Colorado	Denver	October 18, 3 P.M.	Constructing extension, etc., to Federal Building	James Knox Taylor, Wash., D. C.
Alabama	Montevallo	October 18	Plumbing, steam heating, etc., addition Girls' Industrial School	Wm. Ernest Spink, Birmingham.
Wisconsin	Milwaukee	October 21, noon	Constructing auditorium bldg.; entire or 14 separate bids for masonry, concrete work, etc; entire cost, $475,000	Ferry & Clas. Architects.
Iowa	Des Moines	October 21, 3 P.M.	Erecting, complete, Federal Building	James Knox Taylor, Wash., D. C.
New Jersey	Secaucus	October 22, 8 P.M.	Erecting Borough Hall, lock-up and fire house	Chas. F. Long, Jersey City, Arch.
Indiana	Terre Haute	October 30, noon	Constructing new County jail, Sheriff's residence and heating plant, including remodeling present jail	J. W. Denchie, County Auditor.
Georgia	Atlanta	October 30, 3 P.M.	Constructing superstructure of Federal Building	James Knox Taylor, Wash., D. C.
Indiana	Bloomfield	November 5, 2 P.M.	Erecting new jail cell house	J. W. Gaddis, Vincennes, Arch.
Texas	Houston	November 5	Plans and specifications for $500,000 fireproof Court House	Geo. F. Horton, County Engineer.

Bridges

Indiana	Evansville	October 3, 10 A.M.	Constructing three reinforced concrete bridges	Harry Stinson, County Auditor.
Indiana	Williamsport	October 3, 1 P.M.	Constructing steel and concrete bridge	County Commissioners.
New York	New York	October 3, 2 P.M.	Building Madison Avenue bridge over Harlem River	J. W. Stevenson, Com'r Bridges.
Minnesota	Fergus Falls	October 3, 8 P.M.	Erecting steel or concrete bridge over Red River	G. H. Gard, City Clerk.
Indiana	Indianapolis	October 5, 10 A.M.	Erecting two bridges and five culverts, various twps.	C. J. Clark, County Auditor.
Indiana	Crawfordsville	October 5, 10 A.M.	Erecting 2 concrete arch bridges in Madison and Repley Twps.	B. F. Carman, County Auditor.
Indiana	Tipton	October 7, 1 P.M.	Erecting bridge over Turkey Creek	J. F. Barlow, County Auditor.
Indiana	Kentland	October 7, 1 P.M.	Constructing approaches to Stonehill bridge	County Commissioners.
Ohio	St. Clairsville	October 7, 1 P.M.	Erecting 2 concrete bridges, steel superstructure, 30 x 14 ft., etc.	A. W. Beatty, County Auditor.
Ohio	Niles	October 7, 1 P.M.	Laying wood block on plank base, Main St. County bridge	County Commissioners.
Indiana	Salem	October 7, 1:30 P.M.	Constructing steel bridge and stone abutments	J. G. Ellis, Co. Auditor.
Indiana	Vevay	October 7, 2 P.M.	Erecting concrete or iron bridge, to replace 144 ft., 3-span bridge	L. J. Woollen, County Auditor.
Indiana	Rushville	October 7, 2 P.M.	Constructing two concrete bridges	County Commissioners.
Mississippi	Meridian	October 7, 2 P.M.	Building steel or wooden bridge over Creek, near Increase P. O.	B. V. White, County Supervisor.

Bridges—*Continued*

Indiana	Crown Point	October 7	Constructing concrete arch on Cedar Lakeroad	Chas. A. Johnson, County Auditor.
Indiana	Hammond	October 7	Sub, superstructure and machinery for swing bridge	C. A. Johnson, Crown Point, Co. Aud.
Ohio	Fremont	October 7	Constructing sub- and rein. concrete superstructure over Big Mud Creek; also taking down steel bridge and abutments,etc.	S. M. Froznier, Co. Auditor.
Mississippi	Vicksburg	October 7	Erecting 2 reinforced concrete bridges	W. G. Kirkpatrick, Jackson, Eng'r.
Kansas	Atchison	October 7	Rebuilding bridge No. 230 Mt. Pleasant Township	J. C. Hotham, Chm. Co. Com'rs.
Ohio	Hamilton	October 8, 10 A.M.	Erecting sub and superstructure bridge over Two Mile Creek	Chs. Pabst, County Auditor.
Indiana	Delphi	October 8, noon	Erecting bridge and abutments or arch culvert over creek	Fred H. Engel, County Auditor.
Pennsylvania	Jersey Shore	October 8, noon	Rebuilding sub and superstructure of bridge.	S. B. Rambo, Harrisburg, S. P.G.&B.
Mississippi	Vicksburg	October 8, noon	Building steel bridge over Simrall's Canal	J. D. Laughlin, Chancery Clerk.
North Dakota	Fargo	October 8, noon	Constructing five bridges; two 20 ft. 40, 90 and 100 ft. long	Arthur L. Lewis, County Auditor.
Pennsylvania	Wilkes-Barre	October 8, noon	Rebuilding sub and superstructure bridge over Nescopek Creek.	Sam'l B. Rambo, Harrisburg.
Mississippi	Vicksburg	October 9, noon	Repairs to Durden bridge	J. D. Laughlin, Chancery Clerk.
Florida	Palatka	October 9	Erecting $90,000 bridge over St. John's River	R. R. Price, County Engineer.
Texas	Houston	October 10, noon	Constructing $20,000 bridge over San Jacinto River	County Auditor.
Kansas	Eureka	October 10	Constructing steel bridge, 60 ft. span, one 24-ft. approach	W. H. Bonnett, County Clerk.
Ohio	Xenia	October 12, noon	Erecting low truss bridge, 90 ft. long, 14 ft. clear roadway	William Dodds, County Auditor.
Ohio	Toledo	October 14, 10 A.M.	Bldg. 2 concrete masonry abutments, Washington Township	Board of County Commissioners.
California	Los Angeles	October 14, 11 A.M.	Erecting reinforced concrete bridge over Los Angeles River at 7th St., 318 ft. long, 20 ft. wide, contain, 5,440 cu. yds. cement	H. G. Parker, Bridge Engineer.
Ohio	Bellefontaine	October 14, 1 P.M.	Erecting 67-ft. steel span on concrete abutments, 40-ft. r'dway	Chas. M. Richey, Co. Surveyor.
New Brunswick	Fredericton	October 14	Constructing metal span of Cocagne Mouth Bridge, Kent Co.	C. H. La Billois, Chm. Com'n.
Manitoba	Dunrea	October 15, noon	Constructing steel bridge, two 100-ft. spans, on concrete and boulder masonry foundation over Souris River	J. H. Putnam, Mun. Riverside.
Kansas	Erie	October 15, noon	Erecting 3 steel or iron bridges, one to cost $12,000; others, $6,000 or $7,000 each; also repair, etc., 2 bridges	O. M. Johnson, County Clerk.
China	Canton	October 19	Constructing steel cantilever and girder bridge, 1,102 ft. long, in Front Reach, 740 ft. west of Dutch-folly Fort	Canton River Bridge Co., Ltd.
Dist. of Col'bia	Washington	October 24	Steel railroad bridge for Isthmian Canal Commission	E. F. Hodges, Gen. Pur. Agent.
Montana	Glendire	November 15, 2 P.M.	Constructing 34 steel bridges, Lower Yellowstone Project	U. S. Reclamation Service.

Lighting and Electricity

Illinois	Cicero	October 3, 8 P.M.	Furnishing 120 arc lamps, 2 transformers and regulators, 3 switchboard panels, 3 lightning arresters	T. J. Buckley, Morton Park, T'n Clk.
Florida	Jacksonville	October 4, noon	Furnishing and setting up 1,500 k. w. steam turbo-generator, 50 k. w. motor driven exciter	R. N. Ellis, Supt. Light Plant.
Indiana	Crawfordsville	October 5, 10 A.M.	Constructing and equipping lighting plant at County Asylum	B. F. Carmon, County Auditor.
New York	Fort Slocum	October 7, 10:45 A.M.	Electric wiring, plumbing, etc., seven new buildings	Constructing Quartermaster.
Massachusetts	Salem	October 8, 7 P.M.	Installing electric power plant, etc., in new high school	Geo. Huey, 7 Water St., Boston.
Dist. of Col'bia	Washington	October 14	Automatic fire alarm telegraph systems, marine electric fixtures, batteries, dynamite, etc., for Isthmian Canal Commission	H. F. Hodges, Gen. Pur. Officer.
Georgia	Savannah	October 15, noon	Lighting sts. by electric light and incandescent lamps; also for furn. electric current for lighting, heat and power	Harry Willink, Director.
Alabama	Montevallo	October 18	Electric wiring, plumbing, etc., addition Girls' Indus. School	Wm. E. Spink, Birmingham, Arch.
Maryland	Berlin	October 31	Franchise for water works and electric light plant	Orlando Harrison, Mayor.
Indiana	Seymour	November 1	Furnishing gas for light and fuel and electricity for light and power	Fred Everback, City Clerk.
Colorado	New Fort Lyon	November 9, 11 A.M.	Erecting central power, light and heating plant, Naval Hospital.	Navy Department, Washington, D.C
Dis't of Col'bia	Washington	November 14	Furn. fire alarm telegraph system, marine electric fixtures, batteries, etc., Isthmian Canal Commission	E. F. Hodges, Gen. Pur. Agent.
South Carolina	Charleston	November 15, noon	Lighting sts. and public bldgs., 1, 2 or 4 yrs., inc. 500 arc. lights or equivalent in 5 ft. gas burners	Ion Simons, City Electrician.
India	Calcutta	December 31	Lighting town by electricity, gas, oil, or other method; now lighted by 9,300 gas lamps of 24 c.p. and 2,400 c.p. oil lamps	Municipal Council.

Miscellaneous

Massachusetts	Boston	October 3, noon	Bldg. wall, roof, etc., enlarging subway, Haymarket Square	Boston Transit Commission.
New York	New York	October 3, 3 P.M.	Constructing stone wall and iron fence in Bronx Park	Park Board.
New Jersey	Cold Spring	October 3	Constructing stone jetties, Cold Spring Inlet	Maj. C. A. F. Flagler, Wilm't'n, Del.
Illinois	Chicago	October 5, 11 A.M.	Furn. improved turret lathe and steam hammer for Fire Dep't.	James Horan, Fire Marshal.
Ohio	Toledo	October 7, 10 A.M.	Constructing riprap stone wall along east side of fill crossing Mud Creek, north of Casino, Washington township	L. B. Bailey, Chm. Co. Comrs.
Louisiana	New Orleans	October 7, 10 A.M.	Erecting 75-ft. iron flagstaff at Fort Jackson	Capt. Arthur Cranston, Q. M.
Ohio	Toledo	October 7, 10 A.M.	Constructing ripran stone wall	County Auditor.
California	Los Angeles	October 7, 11 A.M.	Machinery for equipment of 1,000 bbl. cement plant	H. B. Perris, Sec'y Bd. Pub. Wks.
Massachusetts	Cambridge	October 7	Constructing a garbage incinerator	Geo. M. Clukas, Supt. Streets.
California	Los Angeles	October 7	Cement-making machinery for Aqueduct, Specification No. 6.	W. R. Ormsby, Act. Pur. Agent.
New York	Troy	October 8	Furn. aerial hook and ladder truck; comb. chemical-hose wagon.	P. Byron, Chief Fire Dept.
New Jersey	Asbury Park	October 9	Building jetties to protect and build up beach	W. P. Sherman, Sec'y Pub Gr. Com.
New Jersey	Jersey City	October 10, 9 P.M.	Improving grounds around new high school building	John T. Rowland, Architect.
Alabama	Riverton	October 12, 11 A.M.	Excavation, riprap and paving at Colbert Shoals Canal	Maj. Wm. W. Harts, Eng'r Corps.
Ohio	Cincinnati	October 14, noon	Constructing concrete wall, etc., Clifton School	E. H. Dornette, Architect.
Ontario	Lion's Head	October 18	Constructing extension to wharf	J. G. Sing, Toronto, Res. Eng'r.
Dist. of Col'bia	Washington	October 19	Furnishing 12,000 trunk lockers	Maj. M. Gray Zalanski, Q. M.
Dist. of Col'bia	Washington	November 14	Furn. firemen's helmets, fire alarm system, hose, nozzles, fire harness, attachments, etc., Isthmian Canal Com.	E. F. Hodges, Gen. Pur. Agent.

STREET IMPROVEMENTS

East Lake, Ala.—The citizens will vote on the question of issuing street improvement bonds.—W. A. Williams, Clerk.

Evergreen, Ala.—An election will be held to decide the question of issuing $50,000 bonds for county road construction.—Address County Auditor.

Mobile, Ala.—Engineer Smith estimates that there are 12,000 square yards to be resurfaced on Conti, Dauphin, St. Francis and St. Michael between Royal and Front streets, and on Water street between St. Michael and State streets, and that the total cost of this work would be about $25,000.—Stewart Brooks, President, Board of Public Works.

Montgomery, Ala.—Council has passed ordinances to pave both sides of Hull street, Pollard street, and Park place, south side of Finley avenue and east side of Pleasant avenue; estimated cost, $15,000.—A. R. Gilchrist, City Engineer.

Los Angeles, Cal.—A special election will soon be held to vote on issuing $3,000,000 bonds for good roads.—R. J. Lelande, City Clerk.

Oakdale, Cal.—The City Engineer has been directed to furnish estimate of cost for the grading, curbing and macadamizing of Fourteenth avenue; a resolution of intention has been adopted for opening Market street and laying sidewalks, grading, curbing, macadamizing a number of streets.—F. C. Turner City Engineer.

Hartford, Conn.—Completed specifications for pavement in Asylum street have been approved and the Board of Contract and Supply will ask for proposals.—Frederick L. Ford, City Engineer.

Wilmington, Del.—Directors of the Street and Sewer Department have decided to purchase and install a municipal paving plant, believing the city, by doing its own bitulithic and asphalt paving, can save about $60,418 in two years; the Department has $500,000 to expend in building and repairing about 170,000 square yards of streets.—Theo. A. Leisen, Chief Engineer.

Elgin, Ill.—An ordinance for sidewalks on National street has been passed.—Wm. F. Sylla, City Clerk.

Fort Wayne, Ind.—Resolutions have been passed to lay cement walks on a number of streets.—Frank M. Randall, City Engineer.

La Grange, Ind.—Ordinances have been passed for improving certain streets by paving; estimated cost, $15,000.

Vincennes, Ind.—The citizens of Johnson township, Knox county, have voted bonds for the construction of gravel roads.—Address Auditor of Knox County.

Davenport, Ia.—Second street is to be paved with asphalt, by order of Council.—Thos. Murray, City Engineer.

Wichita, Kan.—Council has ordered permanent sidewalks on six streets and avenues. The City Attorney has been instructed to prepare an ordinance straightening Douglas avenue from Waco avenue to the Arkansas river.—E. H. Sawin, City Engineer.

Lowell, Mass.—Resolution has been adopted to macadamize and lay sidewalks on Boisvert street.—Geo. Bowers, City Engineer.

Lynn, Mass.—Essex street, from Johnson street to Washington, has been ordered paved with bitulithic; and that Pearl street be paved with suitable smooth pavement.—George I. Leland, City Engineer.

Grand Rapids, Mich.—The Board of Public Works has been requested to furnish Council an approximate estimate of the cost of grading and paving Willow court with brick on concrete, including headers, necessary bridges, culverts, gutters, crosswalks, manholes, catch basins, storm water sewers, sewer laterals, and approaches.—L. W. Anderson, City Engineer.

Kalamazoo, Mich.—Several sidewalks have been ordered built on Charlotte avenue, the width of Gilbert avenue reduced from 42 to 38 feet between curbs, and the Street Commissioner ordered to take out all burdocks and thistles from the streets.—H. G. Johnston, City Engineer.

Marion, Mich.—The citizens have voted $12,000 bonds for road improvement.—Address Town Clerk.

Port Huron, Mich.—Council has voted to appropriate $4,500 for building cement sidewalks.

Reed City, Mich.—The citizens have voted $10,000 bonds for improving the highway in Marion township.

St. Joseph, Mo.—Council has passed notice of intention to grade First street and an ordinance to grade and lay sidewalks on Twenty-first street.—David F. Lawler, City Engineer.

St. Louis, Mo.—The Municipal Assembly has authorized laying wood block paving around the Merchants' Exchange building, at Third and Pine streets.

Long Branch, N. J.—An ordinance has been passed to curb and flag Branchfort avenue its entire length.—Bryant B. Newcomb, City Clerk.

Binghamton, N. Y.—Bids will be received, October 3, for the purchase of $25,000 4 per cent. street improvement bonds.—D. C. Herrich, City Clerk.

Mt. Airy, N. C.—The proposition to issue $15,000 improved road bonds carried.—Address City Clerk.

Akron, O.—The Mayor and Clerk have been authorized to make a contract for the laying of the sidewalks in front of school property on High street.—J. W. Payne, City Engineer.

Athens, O.—Plans are to be immediately prepared for paving Smith and East Mulberry streets.

Batavia, O.—Cement sidewalks will soon be laid on various streets; estimated cost, $5,721.—G. H. Hain, Village Clerk.

Celina, O.—Bids will be received, October 19, for the purchase of $14,000 Mercer county pike bonds; interest, 4½ per cent.—F. A. Weis, County Auditor.

Cincinnati, O.—A resolution has been passed to appropriate property to open and extend Home place (Evanston), from its northern terminus to Jonathan street; an ordinance has been passed to improve Harrison street. —Chas. N. Davenhouse, City Engineer.

Delaware, O.—Preliminary legislation for paving West Winter street and Lincoln avenue has passed Council.

Greenwich, O.—Bids will be received, October 14, for the purchase of $12,000 street improvement bonds.—J. G. White, Village President.

Hamilton, O.—The City Engineer has been instructed to prepare plans for curbing, guttering and paving roadway of Fourth street with sheet asphalt, vitrified brick or bituminous or bitulithic macadam; an ordinance has been passed to improve Franklin street by grading, graveling, curbing, guttering and paving the sidewalks with cement.

Lorain, O.—Council has appropriated $6,000 for improving Tenth street by surfacing the thoroughfare throughout with slag.

Bids will be opened, October 19, for $44,000 Reid street paving bonds; $8,500 Washington street paving bonds; $68,000 Oakwood street macadam bonds; $13,500 Bank street paving bonds, and $16,000 Second avenue paving bonds.—Custer Snyder, City Auditor.

Martins Ferry, O.—Council has directed plans to be prepared for improving seventeen streets; the amount of paving to be laid is about two miles.

Milford Centre, O.—Bids will be opened, October 12, for $19,700 5 per cent., semi-annual street improvement bonds.—A. J. Huffer, Village Clerk.

Paulding, O.—Bids will be opened, October 8, for $2,300 semi-annual 5 per cent. bonds for street improvements.—E. H. Cooper, Town Clerk.

Springfield, O.—The preliminary legislation has passed calling for the pavement of South Fountain avenue; the Engineer has been instructed to prepare plans and estimates for paving the street between South High and Perrin avenues.

Toledo, O.—An ordinance is before Council providing for issue of $150,000 boulevard bonds.—Address City Clerk.

The County Commissioners have ordered bids advertised for the improvement by macadamizing of the Sylvania avenue stone road, a mile west of the end of the brick pavement, at a cost of $6,627; the road will be built over an old limestone road.

Youngstown, O.—Resolutions have been passed by Council to grade, drain and improve Erie street, and to purchase land to widen West Boardman street. An ordinance has been passed by Council for an extra bond issue for widening West Federal street. —F. M. Lillie, City Engineer.

Altoona, Pa.—Ordinances have been adopted to pave West Chestnut avenue, First avenue, and Sixth alley, and grade Pine avenue. —G. W. Kuebler, President, Board of Public Works.

Chester, Pa.—Council has passed a resolution to pave the roadway of Lewis street.—B. G. Landomus, City Engineer.

Frankfort, Pa.—Council has authorized the opening of Penn street, regrading Deal street, repaving ten squares of Frankfort avenue.

Hazleton, Pa.—Council has passed an ordinance providing for the issuing of bonds in the sum of $15,000 for paving improvements.—B. E. Youngman, City Engineer.

Williamsport, Pa.—It has been decided to pave Campbell street, from Edwin street to Park avenue, this fall.

Dallas, Tex.—An ordinance has been prepared for $100,000 bonds for street improvements.

Ft. Worth, Tex.—Commissioner Sam Davidson, of the Street Department, and City Engineer Woodward are evolving plans to change materially the grading on a number of the downtown streets; immediate changes will be made in the street surface at the corner of Houston and Ninth, Main and Eighth, and Rusk and Thirteenth streets. These streets are all well paved, but a portion of the pavement will have to be torn up and relaid to effect the desired improvements. The changes will be made wherever the ends of large storm sewers have caused depressions of several feet in the mean level as obtains at the places named.

Palestine, Tex.—Bonds amounting to $50,000 will be issued for street paving, etc.

Petersburg, Va.—Council has decided to pave Washington street with vitrified block; estimated cost, $5,700.

Seattle, Wash.—Council has decided to improve Washington street by extending the boulevard system.

SEWERAGE

Mobile, Ala.—Council has granted petitions and made appropriations for the construction of various sewers.

Oakland, Cal.—A resolution of intention has been adopted to construct sewer in Twelfth street.—F. C. Turner, City Engineer.

Cairo, Ill.—Bids will soon be asked for constructing about 40,000 lineal feet of sewers.—W. B. Thistlewood, City Engineer.

Joliet, Ill.—Plans are being prepared for constructing First Ward trunk sewerage system; estimated cost, $31,000.—H. A. Stevens, City Engineer.

East St. Louis, Ill.—A sewerage system costing about $780,000 will be constructed.—Charles S. Lambert, City Clerk; W. J. Crocken, City Engineer.

Wellington, Kan.—Plans and specifications for constructing sanitary sewerage system are being prepared.—H. A. Rowland, McPherson, Engineer.

Louisville, Ky.—Harrison M. Eddy, Consulting Engineer, is preparing estimates for proposed sewer work, for which contracts will be let in October; estimated cost of work, $25,000.

Lynn, Mass.—Sewers have been ordered laid in Florence court, in Ridgeway street, as far as Adams street, and in Barrett street.—George I. Leland, City Engineer.

Detroit, Mich.—Council has ordered the Department of Public Works to advertise for proposals for constructing five lateral sewers; estimated cost, $1.75 per lineal foot.—Geo. McCormick, City Engineer.

Grand Rapids, Mich.—The Board of Public Works has been directed to furnish to the Common Council an approximate cost of constructing public sewers in California street and in Eleventh street, including the necessary storm water conduits, branches, manholes, catch-basins and laterals.—Samuel Freshney, Secretary.

Kalamazoo, Mich.—Resolutions have been adopted to construct sanitary sewers in nine streets.—H. A. Johnston, City Engineer.

Trenton, N. J.—Ordinance has been passed to construct sewer in Cherry street. Bids will be asked to build a drain from Bondinot street to Hermitage avenue, and to build sewers, 385 on Barbara street and 66 on St. Paul avenue.—Harry B. Salter, City Clerk; A. Swan, Jr., City Engineer.

Batavia, N. Y.—Alexander Porrer, of this city, has been directed to prepare plans for a sewerage system.

Cohoes, N. Y.—No bids were received for the proposed new sewer in Hart street or for the improvement of the Black bridge.—C. H. Van Auken, City Engineer.

Sea Cliff, L. I., N. Y.—The Village Improvement Association is considering the question of constructing sewage disposal system.

Chagrin Falls, O.—Bids will be received, October 12, for the purchase of $60,000 sewer bonds; interest, 5 per cent.—F. D. Bishop, Clerk.

Cincinnati, O. — Ordinances have been passed to construct sewers in Stanley avenue and in McMillan street, Jonathan avenue, Woodburn avenue, Ehrman street and in Norwich avenue; the Chief Engineer estimates it will cost $19,566.50 to build a sewer in Glenway avenue, between Considine avenue and Wing street.—Chas. N. Danenhower, City Engineer.

Cleveland, O.—Ordinance has passed for constructing brick masonry and vitrified pipe sewer and appurtenances in Denison avenue, Southwest, between Big Four Railway and West Fifty-ninth street, to cost $13.225.—Peter Witt, City Clerk.

Columbus, O.—The Sinking Fund Trustees received no satisfactory bid for the purchase of $237,000 sewage disposal bonds.

Girard, O.—Bids will be received for constructing sewer from the city disposal plant to Liberty street.—E. H. Hauser, Clerk.

Hamilton, O.—An ordinance has been passed to issue $25,000 bonds for sewer and street improvements. The City Engineer has been instructed to prepare plans and specifications for sanitary sewers on B street, on Arch street, and on Ninth street, and estimates the cost of sanitary sewers on South B, Franklin, Miliken and Arch streets to be $2,143.50. An ordinance has been passed to construct an 8-inch sanitary sewer on South C street.

Marion, O.—A 500-foot sewer is to be constructed by the city.—Geo. Dwyer, City Engineer.

Youngstown, O.—Resolutions have been passed by Council to construct sewers in Fairview and Ridge avenues, and in Iron and Pine streets.—P. W. Hubler, City Clerk.

Zanesville, O.—Plans for the southwestern sewer, recently prepared by Engineer H. I. Buell, have been approved by the Board of Public Service; bids will be advertised at once.

Alva, Okla.—The proposition to issue $40,000 sewer bonds will be submitted to the voters at the October election.—Address City Clerk.

Altoona, Pa.—Ordinances have been adopted to construct sewers in Eighth alley, Bell avenue and Walnut avenue.—G. W. Kuebler, President, Board of Public Works.

Butler, Pa.—Council has decided to construct storm sewer in Short street.

Chester, Pa.—Council has passed an ordinance for the construction of a sewer on Fifth street.—B. G. Ladowns, City Engineer.

Reading, Pa.—The $40,000 loan ordinance for the building of storm water sewers has been passed by Select Council.—Elmer H. Beard, City Engineer.

Williamsport, Pa.—The Grafius Run sewer is to be completed from Laurel street to the borough line of East Fourth street; estimated cost, $8,000.—James F. Fisher, City Engineer.

Chattanooga, Tenn.—The Board of Public Works has decided to advertise for bids for the construction of the Chestnut street sewer.

Fort Worth, Tex.—The question of issuing bonds for constructing sewerage in North Fort Worth is under consideration.—Address City Clerk.

WATER SUPPLY

Wallingford, Conn.—The Water Commissioners have prepared a report on the increase of water by gravity supply from Pistapang lake; estimated cost, $38,000.—J. H. Child, Engineer and Superintendent of Water Works.

Ashburn, Ga.—An election will be held to vote on the question of issuing $45,000 bonds for water plant.

Atlanta, Ga.—The Water Works Committee, P. D. Longing, Chairman, is considering improving the water system and enlarging the capacity of the water plant.

Millen, Ga.—The citizens have voted $36,000 bonds for water works.—H. G. Bell, Mayor.

Deer Creek, Ill.—An election will be held, October 15, to vote on the question of issuing bonds for water works.—Address City Clerk.

East Moline, Ill.—Plans for constructing water works system are being prepared.—W. H. Kimball, Davenport., Ia., Engineer.

Rockford, Ill.—Council has decided to extend the water mains.

Lindsay, I. T.—The citizens have voted in favor of issuing $25,000 bonds for water works.—Address City Clerk.

Auburn, Me.—Council has authorized issue of $25,000 water extension bonds.—Address City Clerk.

Blandford, Mass.—At a special town meeting the town voted down the plan for a water supply for the Center; a fire district will be formed or a stock company organized.

Grand Rapids, Mich.—The proposition to bond the city $2,500,000 for Lake Michigan water has been defeated at special election; the franchise of the Muskegon Power Company has been ratified.—John L. Boer, City Clerk.

Meridian, Miss.—The question of issuing $50,000 bonds for extension of water system will be submitted to a vote.

Hildreth, Neb.—The citizens have voted $10,000 bonds for water system.—Address City Clerk.

Verona, N. J.—An election will be held to decide the question of issuing bonds for the construction of water system.—Address City Clerk.

Roswell, N. M.—At a special election the question of issuing bonds amounting to $125,000 for constructing water works was defeated.—Fred. J. Beck, City Clerk.

King's Mountain, N. C.—Bids will be received, October 3, for purchase of $50,000 water and light bonds.—F. L. Carpenter, Clerk.

Akron, O.—A resolution is before Council authorizing an election to be held to vote on the question of issuing bonds for municipal water system.—Address City Clerk.

Cambridge, O.—Bonds, $50,000, will be issued for a new water supply.

Massillon, O.—An election will be held on the question of the purchase of the plant of the Massillon Water Supply Company, at a valuation of $290,500.—W. N. Inman, Superintendent, Water Works.

Newark, O.—The proposition to buy the old water works plant for $200,000 was defeated; $300,000 has been spent on the water works plant, and a bond issue will have to be authorized to complete same.

Paulding, O.—Bids will be opened, October 8, for $4,400 semi-annual 4 per cent. water works bonds.—E. H. Cooper, Village Clerk.

Carrollton, Pa.—Bonds, $25,000, have been voted to secure water supply.

Pottsville, Pa.—The water supply of this city is unsatisfactory; improvements must be made.

Reading, Pa.—The ordinance providing for a special election to secure the assent of the voters to a loan of $500,000 for the filtration of the city's water supply has been advanced to Common Council.—Chas. C. Weltmer, City Clerk.

Park City, Tenn.—Franchise has been granted the Knoxville Water Company; estimated cost of extension of water mains and placing of fire hydrants, $50,000.

Crockett, Tex.—Bonds have been voted for constructing water system.—Address City Clerk.

Dallas, Tex.—An ordinance has been prepared for $500,000 bonds for water works improvements.

Fort Worth, Tex.—The Cleburne Water Works Company has the contract to improve the system. The work includes recasing all wells with larger pipe, laying a large main to the northern limits of town and building a 5,000,000-gallon underground reservoir by June, 1908.

San Antonio, Tex.—The Alamo Heights Company is in the market for a water system, the water to be obtained from deep wells.—W. B. Willun, 221 East Houston street, Secretary.

Aberdeen, Wash.—J. M. Clapp proposes to ask Council for a franchise to be permitted to supply the city with water, and also to purchase the present plant. He offers to pay the city $150,000 for its present system, and says he will also put in a new system.

Tacoma, Wash.—The Green River gravity water proposition has been defeated by vote; the Mayor advocates that a battery of twenty-five wells be at once bored on the prairies south of the city.—L. W. Roys, City Clerk.

Milwaukee, Wis.—Bids will be received for furnishing the city Water Department with 5,000 tons of steel castings, according to plans and specifications.—Paul Bechtner, Comptroller.

LIGHTING AND ELECTRICITY

Huntsville, Ala.—Plans for the extensive improvements of the electric light system and the street railroad have been forwarded to President T. W. DuPont, and as they were made according to his suggestions, he will probably approve them.

San Francisco, Cal.—The Artificial Lights Committee has recommended the placing of twelve additional lights on Kearny street, and some thirty-six arc lights to be distributed in the Visitacion valley, Bernal Heights, and Hunter's Point districts.

Washington, D. C.—Electrical Engineer Walter C. Allen, in the annual schedules for his department for the next fiscal year, recently submitted to the Commissioners, asks appropriations of $259,000 for lights, etc.; $124,350 for electric lighting; $5,000 for 27 additional fire alarm boxes; $1,700 for repairing fire alarm boxes; $75,000 for replacing the present underground fire alarm cables with rubber cables; $3,000 for cost of increasing the small tapper fire alarm circuits from 4 to 10; $13,000 for purchasing and erecting insulated wires and cables to replace present bare copper wires used in fire alarm circuits; $13,000 for the purchase of 65 additional fire alarm boxes, etc.

Atlanta, Ga.—Bonds, $45,000, have been voted for erecting an electric lighting plant.

Columbus, Ga.—Council has recalled the election to be held October 10 to decide the question of issuing $100,000 electric light bonds.—Address City Clerk.

Cherry Valley, Ill.—W. H. Poulton and W. W. Mockey have purchased the Cherry Valley mills and electric plant and intend to fix up the mills and install new machinery; they will be in a position to give the people of the village a better service than ever before.

Galena, Ill.—The Galena lighting plant, which has been operated for a number of years, has been sold to a Western syndicate, with which a contract has been made for furnishing light for twenty-five years.

Bay City, Mich.—Because of the destruction by fire of the electrical power house in the yards of the W. D. Young Company's mill in Salzburg, the E. I. Dupont Power Company has been without electric lights with which to operate chemical plant; the company has decided to install a generator of its own in the chemical plant.

Negaunee, Mich.—The City Recorder is receiving bonds for the purchase of $10,000 electric light bond.—Address City Clerk.

Columbus, Miss.—The city has granted a 25-year franchise to Grayson & Elder, Biloxi, Miss., for the erection of an electric light plant; the same firm will also install a 20-ton ice plant.

Forest, Miss.—E. Cahn, Meridian, Miss., Manager of the Forest Ginning & Manufacturing Co., will install electric plant for lighting town.

Oxford, Miss.—The power plant of the University of Mississippi, which was destroyed by fire on August 30, causing a loss of $10,000, will be rebuilt at once; the city contemplates building a municipal electric lighting plant in connection with the water works; the electric plant at the university supplied electricity for lighting the town.

St. Louis, Mo.—The Board of Public Improvements is preparing an ordinance to be introduced in the Municipal Assembly providing authority for the letting of a contract for lighting the city streets and public parks, present annual cost of which is about $600,000.

Atlantic City, N. J,—Council has granted the petition of the business men of Atlantic avenue to light the streets with an incandescent lighting system from New Jersey to Florida avenue; estimated cost, $12,000.

Canal Dover, O.—The question of issuing $35,000 bonds for building an electric lighting plant will be submitted to the voters at the November election.—Address City Clerk.

Scranton, Pa.—The Scranton Electric Company is to spend $10,000,000 improving its service, and will issue $10,000 bonds of the denomination of $1,000 each.

York, Pa.—Council has granted franchise to the Merchants' Electric Light, Heat and Power Company the right to lay its steam pipes in certain public highways; the company on each third Monday of January is to pay to the treasurer of the city of York three per cent. of the gross receipts earned by the company during the previous year, by reason of the right granted by the city.

Nashville, Tenn.—An election will be held, October 10, to decide the question of issuing $400,000 bonds for enlarging the electric light plant.—F. O. Morris, Mayor.

FIRE EQUIPMENT

Wylan, Ala.—Two fire companies are being organized.

San Francisco, Cal.—The Supervisors' Finance Committee has recommended $25,000 for a brick fire house on the old Bush street site, adjoining the California Hotel site, $10,500 for a frame fire house at Sixteenth and Albion avenue, and may recommend $12,500 for one at Green and Leavenworth.—J. J. Shaughnessy, Chief, Fire Department.

Bridgeport, Conn.—The Fire Board has under consideration the purchase of chemical fire engine.

Wichita, Kan.—The City Clerk has been instructed to advertise for 20,000 cottonwood blocks, to be used in the floor of the new Central fire station.—E. H. Sarvin, City Engineer.

St. Paul, Minn.—Council will let contracts for the erection of a brick engine house.—William O'Gorman, Secretary.

The Fire Board recommends the building of a fire house at University avenue and Albana street.

Buffalo, N. Y.—The Board of Aldermen has decided to erect two additional fire stations.

Rochester, N. Y.—The residents of the Eighteenth Ward have petitioned for improved fire protection.

Troy, N. Y.—The Commissioner of Public Safety has sent a requisition to the Board of Contract and Supply to equip the new hook and ladder house in the South End with a sixty-five foot aerial hook and ladder truck and also to furnish the Beman Parp Hose Company with a combination chemical and hose wagon.—Patrick Byron, Chief, Fire Department.

Cincinnati, O.—An ordinance has been passed providing a bond issue of $20,000 to erect a fire engine house.—J. A. Archibald, Chief, Fire Department.

Lorain, O.—The sum of $6,000 has been appropriated for erecting a hose house.

Springfield, O.—Bids will be received, October 22, for the purchase of $5,000 4 per cent. Fire Department bonds.—L. M. Harris, City Auditor.

Carrolltown, Pa.—The citizens have voted $25,000 bonds for constructing fire house.—Address City Clerk.

Easton, Pa.—An ordinance has been passed providing issue of $27,000 bonds to pay for extending the paid Fire Department of Easton to South Easton.

Chattanooga, Tenn.—The City Engineer has been instructed to construct a new floor of wood paving blocks for fire hall No. 2; the cost of the work is estimated at about $150.

PUBLIC BUILDINGS

Ashburn, Ga.—An election will be held to vote on the question of issuing $65,000 bonds for erecting school house and constructing electric light plant.—Address City Clerk.

Atlanta, Ga.—An election will be held to decide the question of issuing $1,000,000 bonds for the construction of a County Building and City Hall.—Address City Clerk.

Aurora, Ill.—The County Board has under consideration an issue of $10,000 bonds for improving Court House.

Fox River, Ill.—The citizens will vote on issuing $10,000 City Hall bonds.—Address City Clerk.

Bartlesville, I. T.—Bonds, $75,000, for schools have been authorized.—Address Clerk of the Board.

Coffeyville, Kan.—An election will be held, October 22, to vote on the question of issuing $23,000 school bonds.—J. H. Wilcox, Mayor.

South St. Paul, Minn.—The residents have petitioned for issue of $35,000 school bonds.

Magnolia, Miss.—Bids will be received, October 15, for the purchase of $25,000 5 per cent. 20-year school bonds.—A. L. Lazar, City Clerk.

Edina, Mo.—An election will be held, October 8, to vote on issuing $75,000 bonds for erecting a Court House in Knox county.—Address County Auditor.

Cincinnati, O.—Bids will be received, October 14, for the purchase of $250,000 40-year school bonds; interest, 5 per cent.—William Grautman, Clerk.

Marietta, O.—Bids will be received, October 3, for the purchase of $8,500 20-year 4 per cent. school bonds.—Carl Becker, City Auditor.

Hays, Pa.—The Borough Council has approved issue of $10,000 school bonds.—Address Clerk of the Board.

Spartanburg, S. C.—Bids will be received, November 4, for the purchase of $15,000 6 per cent. school bonds, payable in 20 years.—E. F. Pearson, Chairman.

Kennebec, S. D.—The citizens will vote on issue of bonds for school purposes.—Address Clerk of the Board.

Nashville, Tenn.—The question of issuing bonds for building a high school will be submitted to a vote.

Grapevine, Tex.—The Attorney General has approved an issue of $11,000 school bonds.

Laredo, Tex.—The Attorney General has approved issue of $40,000 school bonds.—Address President of the Board.

STREET RAILWAYS

Oakland, Cal.—The application of the Oakland Traction Company for a street railroad franchise in and upon portion of Thirteenth avenue, Fourth avenue, White street and Matthews avenue has been granted.—Frank K. Mott, Mayor.

Crawfordsville, Ind.—Announcement is made by C. C. Reynolds, General Manager of the syndicate traction lines in Indiana, that the Crawfordsville division of the Indianapolis & Northwestern, now a division of the Terre Haute, Indianapolis & Eastern, will be extended east from this city to Danville, next spring.

Chattanooga, Tenn.—The Sam Divine Interurban Electric line, from Chattanooga to Dalton and across to Louisville and Nashville, will be commenced in a short time by the engineers; the main power plant of the company will be located at some halfway point, between Chattanooga and Dalton, possibly at Ringgold.

Memphis, Tenn.—Mayor James H. Malone has signed the ordinance granting certain franchises to the Clarksdale, Collierville and Covington Interurban Railroad Company.

Houston, Tex.—As a part of the plan for building the Houston-Galveston interurban, Stone & Webster, of Boston, Mass., have organized a new company, known as the Galveston-Houston Electric Company, with an authorized capital stock of $3,000,000, of which only $100,000 has been issued, and has authorized a bond issue of $5,000,000 first mortgage 5 per cent. bonds, of which probably $2,500,000 will be issued to build the interurban.

BRIDGES

Columbus, Ga.—The citizens have voted $75,000 bonds for bridge purposes.—Address City Clerk.

Des Moines, Ia.—City Engineer George Dobson will approve the plans for a reinforced concrete viaduct across West Seventh street; the cost, according to the estimates of the railroad engineers, will be $175,000.

Baltimore, Md.—City Engineer Fendall's plan for the $180,000 Edmondson avenue bridge across Gwynn's Falls and the Western Maryland Railroad contemplates a solid concrete structure 516 feet long and about 60 feet wide; the span of the main arch will be 139 feet, and the smallest arches 60 feet each; when completed, the bridge will be the largest of its kind in the State.—J. Barry Mahool, Mayor.

Conowingo, Md.—James H. Barlow, President of the Old Conowingo Bridge Company, has sold his holdings in the company to the Pennsylvania Railroad, which has acquired control of the company, and a steel bridge is to be shortly built to replace the one recently destroyed by fire; the bridge crosses the Susquehanna river and connects Hartford and Cecil counties; the present abutments will be raised 10 feet higher, and it will cost $69,000 to erect the bridge.

Cambridge, Mass.—The Cambridge Bridge Commission has decided to abandon the project of building a temporary bridge from Boylston street in Brighton.—Lewis M. Hastings, City Engineer.

Jackson, Minn.—The County Commissioners have appropriated $2,000 towards building a new steel bridge over the Des Moines river; the bridge will cost about $4,000, and the village will put up the difference.

Cohoes, N. Y.—Council has decided to abolish the present Columbia street arch and to erect a concrete arch 60 feet wide; cost, $31,000.—C. H. Van Auken, City Engineer.

Cincinnati, O.—Bids will be received, October 22, for the purchase of $257,000 4 per cent. Gilbert avenue viaduct bonds.—W. C. Culkins, City Auditor.

Dayton, O.—At the November election the question of issuing $200,000 in bonds for building a bridge at Edgewater avenue will be submitted. Bids will be opened, October 17, for $20,000 semi-annual 4 per cent. Montgomery County bridge bonds.—T. P. Kaufman, County Auditor.

Niles, O.—Council is considering building a foot bridge across the Mahoning river, at a cost of $3,000.

Youngstown, O.—Council is considering building a foot bridge across the Mahoning river, at a cost of $3,000.

Beaver, Pa.—The Pittsburg & Lake Erie Railway has petitioned the Secretary of War for authority to bridge across the Ohio river at Beaver.

Johnstown, Pa.—Council has directed the City Engineer to prepare an estimate of the cost of a highway bridge across the Stonycreek at Haynes street.—Geo. E. Hamilton, City Clerk.

Seattle, Wash.—The question of bonding the city for the erection of draw bridges or the building of tunnels under Lake Union and Lake Washington canal will be submitted to the Finance Committee of Council by City Engineer Thomson; the War Department has notified the city government that the present bridges will have to be taken down by next September.

Pleasant Prairie, Wis.—The Town Board will at once let contracts for the erection of a new steel bridge over the O'Plane river at the site of the recent Larrabee's bridge.

MISCELLANEOUS

Berkeley, Cal.—Bids are being received by the City Clerk for constructing garbage disposal plant.—W. F. McClure, City Engineer.

San Francisco, Cal.—Chief Biggy has been directed to receive proposals for a new high-power automobile for the Police Department, to cost about $4,500.

Covington, Ga.—Bonds, $60,000, have been voted for water and sewer purposes.—Address City Clerk.

Bay City, Mich.—Bids will be received, October 14, for the purchase of $25,000 4 per cent. Bay County bonds.—Address County Auditor.

Grand Rapids, Mich.—Council has decided to issue $412,000 bonds, of which $250,000 will be used for the payment of flood protection projects, $153,000 for street improvements, and $9,000 for sewer construction; these are all part of authorized bond issues, and have been held back for some time by the Ways and Means Committee to await a more favorable condition in the bond market.—John L. Boer, City Clerk.

St. Louis, Mo.—The Board of Public Improvements has introduced an ordinance in the Municipal Assembly asking for authority to let a contract for disposing of dead animals to the contracting firm willing to pay the largest sum of money for the privilege.

Butte, Mont.—The Judiciary Committee has sent a recommendation to Council that the City Clerk be directed to invite estimates and suggestions from companies manufacturing and building garbage incinerating plants to take care of at least 100 tons of garbage per day.

Omaha, Neb.—The matter of issuing $15,000,000 bonds is proposed by the City Council.

Passaic, N. J.—Public notice has been given that it is the intention of the Passaic City Tree Commission to plant shade trees on a number of streets and avenues.—William S. Benson, George P. Rust, John E. Ackerman, Commissioners.

Trenton, N. J.—The ordinance providing for the appointment of a garbage collector for five years has been passed.

Cohoes, N. Y.—Bids will be advertised for placing a new steel ceiling in the room in the City Hall where the fire alarm apparatus is located.—Wm. J. Elliot, City Clerk.

The Park Committee has been authorized to purchase $200 worth of trees and shrubbery from Ansel Carpenter, for West Side Park.—Frank Tessier, Superintendent of Streets.

Dayton, O.—An ordinance has been passed authorizing issue of $200,000 bonds; the election will be held in November.—Address City Clerk.

Hamilton, O.—The City Solicitor has been instructed to bring condemnation proceedings for the purpose of acquiring the triangular plot of ground at the junction of Main street and Eaton avenue for park purposes. It is proposed to issue $800 bonds for its purchase.

Springfield, O.—Bids will be opened, October 22, for $17,500 semi-annual 4 per cent. Buck Creek improvement bonds.—Frank A. Crothers, City Clerk.

Youngstown, O.—Bids will be received, October 16, for the purchase of $960,000 4½ per cent. Mahoning county bonds.—M. B. Jones, County Auditor.

Elk City, Okla.—Bonds, $40,000, have been voted for water and sewer purposes.—Address City Clerk.

Oklahoma City, Okla.—The proposition to issue $250,000 bonds for improvement purposes carried.—Address City Clerk.

Chester, Pa.—Council has adopted an ordinance that no blow-off or discharge of boiling water from steam boilers shall, after January 1, be made direct into any city sewer, without the intervention of a cooling tank.

York, Pa.—The proposition to increase the city's bonded indebtedness by $750,000 for completing a sanitary sewerage system, paying the city's portion of general street paving and purchasing and improving parks, was defeated.—Frank R. Thompson, City Clerk.

Johnson City, Tenn.—Bids will be received, October 3, for $34,000 20-year 5 per cent. city improvement bonds and $108,000 1 to 10-year 6 per cent. district improvement bonds.—W. B. Harrison, Chairman of the Finance Committee.

Port Arthur, Tex.—An election will be held to decide the question of issuing bonds.—Address City Clerk.

Tacoma, Wash.—Public Works Commissioner Woods has asked for an appropriation of $45,000 to build a garbage incinerator.

Green Bay, Wis.—A resolution has been passed authorizing the Finance Committee to advertise for bids for bonds amounting to $49,000, to cover $17,000 school and pavement bonds, and the balance for sewer improvements in five districts.—W. G. Kerr, City Clerk.

BIDS RECEIVED

Oakland, Cal.—Contracts have been awarded for grading, curbing, macadamizing, etc., south half of Fortieth street, between lines 240 and 290 feet west of Grove street, to Ransome Construction Company. Grading, curbing, macadamizing, etc., Willow street, from Sixteenth to Seventeenth streets, to the Piedmont Paving Company. For the construction of sewers in East Twenty-fifth, East Twenty-sixth and Eleventh streets, between Clay and Jefferson streets, to Michael Murphy.

Denver, Col.—C. G. Sheely, Denver, was low bidder for complete construction of reinforced concrete bridge across Plum creek, Sedalia, of two 50-foot spans, slab and girder type, at $3,695, including 50 cents per lineal foot for piles driven and $19.50 for extra concrete; National Construction Company, Denver, bid $4,286; Pueblo Building Company, $4,070; Walter Sharp Construction Company, $4,360.

National Construction Company, Denver, F. H. Mitchell, President, was low bidder for erecting Lake County bridge, near Malta, of two 40-foot spans, reinforced concrete slab and girder type, at $4,587, including 50 cents per foot for piling driven, and $18.50 per cubic yard for extra concrete; the Pueblo Bridge Company, Pueblo, bid $4,865, also $4,700 for two 40-foot Luten spans; C. G. Sheeley bid $5,250, and Ruth-Flynn Construction Company, Denver, $4,676.—G. N. Houston, Deputy State Engineer, Commissioner.

Elberton, Ga.—The Augusta Brick Company has the $30,000 contract for street paving.

Chicago, Ill.—The South Park Commission has awarded the Chicago Bitulithic Company a contract aggregating 72,623 square yards of bitulithic, for surfacing the old macadam foundation in Michigan avenue boulevard, from Twenty-second to Thirty-ninth street; Thirty-third street from Michigan avenue to South Park avenue, and South Park avenue from Thirty-third street to Thirty-fifth street.

Elgin, Ill.—The contract for laying 1,500 feet of sidewalks in Wing Park has been awarded to Charles Gierty & Son, at their bid of 13 cents per foot.—Carl E. Plum, City Engineer.

Fort Wayne, Ind.—Bids for cement walks on the south side of Creighton street have been received from Derheimer & Co., 62 cents; Moellering Company, 58¾ cents; O. F. Menefee, 62 2-5 cents.

Contracts have been awarded as follows: O. F. Menefee, for cement walks on the east side of Webster, from Creighton to Woodland, at 72 2-5 cents for 6-foot width and 71 2-5 cents for 5-foot, and for cement walks on the south side of Madison, from Harmer to Division, at 76 2-5 cents. For grading Nuttman avenue and laying cement walks on the south side, from Beaver to Broadway, to Derheimer & Co., at 38 cents for grading and 69 cents for the walks. For the construction of a sewer in Barthold street to Anton Reig at 85 cents a running foot. Other bids were as follows: Fuelling, 86 cents; Derheimer & Co., $1; Moellering Company, $1.03. Mr. Reig was also awarded the contract for a sewer in Spring street, his bids being 89 cents for both 12 and 15-inch pipe. Other bids were: Fuelling, 94 cents and $1.04; Derheimer & Co., 89 2-3 cents and $1.18; Moellering Company, $1.14 and $1.01.—Edward J. Lennon, President, Board of Public Works.

Davenport, Ia.—The Hydraulic Cement Company has been awarded contract to construct sewers on Summit avenue, Eighth street, Belle avenue, and Mitchell street.—Thos. Murray, City Engineer.

Louisville, Ky.—The Standard Asphalt Company has been awarded contract for repair work on various streets, at $12 a ton for hot asphalt and $1.40 a square yard for laying material.

New Orleans, La.—The Sewerage and Water Board has awarded contracts on bids which were received September 4, as follows: Irwin Brothers, New Orleans, La., $229,789, for contract "15W":

Laying cast iron water pipe, per lineal foot: 500 feet 24-inch, $1.50; 500 feet 20-inch, $1.20; 500 feet 16-inch, 80 cents; 17,100 feet 12-inch, 60 cents; 100 feet 10-inch, 45 cents; 500 feet 8-inch, 38 cents; 167,200 feet 6-inch, 35 cents; 152,800 feet 4-inch, 30 cents.

Valves, furnishing on ditch: 24-inch, $225; 20-inch, $165; 16-inch, to be set vertically, $83; 16-inch, to be set horizontally, $105; six 12-inch, $45; 10-inch, $30; 8-inch, $23; 154 6-inch, $17; 124 4-inch, $11.

Furnishing hydrants on ditch: 400 4-inch, with two 2½-inch nozzles, $30; ten with two 2½-inch and one steamer nozzle, $33; ten 6-inch, with two 2½-inch nozzles and one steamer nozzle, $40; setting 420 hydrants and furnishing concrete base and porous filling for same, $6 each.

Relaying pavements: 77,000 square yards asphalt at $4; 700 square yards Belgian block at $3; 100 square yards of vitrified brick at $3; 7,800 square yards square block at 70 cents; 11,600 square yards cobble stone at 60 cents; 11,700 square yards gravel at 60 cents; 63,000 square yards shell at 50 cents; 100 yards bitulithic, $4; 4,000 yards Schellinger, $1.20; 1,400 yards flagging, 90 cents; 4,900 yards brick, 80 cents.

A. L. Patterson & Co., Macon, Ga., $256,167.50 for contract "16W":

Laying cast-iron water pipe, per lineal foot: 63,000 feet 30-inch, $2.68; 47,000 feet 24-inch, $1.30; 13,900 feet 20-inch, $1.20; 500 feet 16-inch, 85 cents; 43,300 feet 12-inch, 70 cents; 100 feet 10-inch, 60 cents; 500 feet 8-inch, 50 cents; 152,500 feet 6-inch, 34 cents; 111,000 4-inch, 30 cents; 600 feet 30-inch and 12-inch flexible pipe, $16.

Valves, furnishing on ditch: Four 30-inch, $363; four 24-inch, $200; ten 20-inch, $140; one 16-inch, to be set vertically, $75; one 16-inch, to be set horizontally, $97; 45 12-inch, $38; one 10-inch, $27.50; one 8-inch, $21; 215 6-inch, $15.50; 106 4-inch, $10.

Hydrants, furnishing on ditch: 480 4-inch, with two 2½-inch nozzles, $27.50; 10 with two 2½-inch and one steam nozzle, $29.70; 10 6-inch, with two 2½-inch and one steamer nozzle, $37.40; setting each hydrant and furnishing concrete base and porous filling, $5; furnishing 45,000 pounds cast-iron valve boxes, manhole covers and frame, 5 cents per pound; relaying pavements, 5,000 square yards asphalt, $2.80; 300 square yards Belgian block, $1.40; 26,000 square yards vitrified brick, $1.10; 25,000 square yards square block, 30 cents; 15,500 square yards cobble stone, 26 cents; 10,300 square yards gravel, 20 cents; 100 square yards bitulithic, $4; 16,000 square yards Schillinger, 75 cents; 700 square yards flagging, 20 cents; 8,000 square yards brick, 30 cents.

M. O'Herron & Co., New Orleans, $2,377.91. Contract "17 W."

Laying pipe per lineal foot: 500 feet 24-inch, $2; 32,000 feet 20-inch, $1.10; 12,900 feet 16-inch, 80 cents; 37,200 feet 12-inch, 60 cents; 100 feet 10-inch, 50 cents; 500 feet 8-inch, 45 cents; 207,000 feet 6-inch, 34 cents; 148,000 feet 4-inch, 99 cents.

Valves, furnishing on ditch: 24-inch, $225; 20-inch, $156; twelve 16-inch, to be set vertically, $82; three 16-inch, to be set horizontally, $105; thirty-six 12-inch, $42.50; 10-inch, $30; 8-inch, $22; thirty-six 6-inch, $17; twenty-two 4-inch, $10.60.

Furnishing hydrants: 540 4-inch with two 2½-inch nozzles on ditch, $30.30; 10 hydrants with two 2½-inch and one steamer nozzle, $33.30; 10 6-inch hydrants with two 2½-inch and one steamer nozzle, $41.50; setting each hydrant and furnishing concrete base and porous filling, $6; 58,000 pounds cast-iron valve boxes, manhole covers and frame, 5 cents.

Relaying pavements: 25,000 square yards asphalt, $4.50; 100 yards Belgian block, $3; 24,000 yards vitrified brick, $3; 100 yards square block, $1; 84,000 yards cobble stone, 50 cents; 43,000 yards gravel, 50 cents; 34,000 yards shell, 50 cents; 100 yards bitulithic, $4; 11,000 yards Schillinger, $1.50; 500 yards flagging, 50 cents; 3,000 yards brick, 50 cents.

General Contracting Co., New Orleans, La., $113,637.50 for Contract "18 W."

Laying cast-iron water pipe: 500 feet 24-inch, $1.50; 500 feet 20-inch, $1.10; 12,000 feet 16-inch, 80 cents; 30,800 feet 12-inch, 60 cents; 100 feet 10-inch, 50 cents; 800 feet 8-inch, 40 cents; 102,200 feet 6-inch, 35 cents; 80,700 feet 4-inch, 30 cents.

Valves, furnishing on ditch: 24-inch, $200; 20-inch, $140; 16-inch, to be set vertically, $75; 16-inch, to be set horizontally, $100; 27 12-inch, $36; 10-inch, $25; 8-inch, $20; 126 6-inch, $15; 100 4-inch, $10.

Furnishing hydrants: 160 4-inch, two 2½-inch nozzles, $25; 5 with two 2½-inch nozzles and one steamer nozzle, $27.50; 5 6-inch, with two 2½-inch nozzles and one steamer nozzle, $35; setting each hydrant and furnishing concrete base and porous filling, $5; 23,000 pounds cast-iron valve box, manhole covers and frames, 5 cents per pound.

Relaying pavements: 500 square yards asphalt, $4; 100 yards Belgian block, $4; 100 yards vitrified brick, $3; 3,000 yards square block, 75 cents; 67,000 yards cobble stone, 75 cents; 500 yards gravel, 60 cents; 600 yards shell, 50 cents; 100 yards bitulithic, $5; 300 yards Schillinger, $1.80; 100 yards flagging, 75 cents; 1,000 yards brick, 75 cents.

All bids received, September 11, on sewerage contracts "Y," "Z," "27 S." and "28 S" have been rejected, the lowest bid on each contract exceeding what the Sewage and Water Board considers a fair price for the work involved.—Geo. G. Earl, General Superintendent.

Detroit, Mich.—Ferd Porath & Son has been awarded the following contracts: to pave Seminole avenue with Kreodone creosoted blocks on concrete foundation and Amherst curb stone, at his bid of average per square yard, including inspection, $3.25; total, $7,765.90; to grade, pave, etc., Longfellow avenue with Kreodone creosoted block on concrete foundation and Amherst curb stone, total cost, including inspection, etc., $7,343.65; to grade, pave, etc., Edison avenue with Kreodone creosoted block on concrete foundation and Amherst curb stone, total cost, including inspection, etc., $16,232.36; to regrade, recurb, concrete, etc., in preparation for sheet asphalt surfacing by the city plant, Scotten avenue with 6-inch concrete foundation, and Medina curb stone, contract price, $3,246.41; W. W. Hatch & Sons Co., for regrading, recurbing, concreting, etc., Howard street, in preparation for street asphalt surfacing by the city plant, from the west curb line of Fifth street to the west curb line of Trumbull avenue, 30 feet wide, with 6-inch concrete foundation and Medina curb stone, contract price, $7,001.30, an average of $2.37 per square yard; for regrading, recurbing, concreting, etc., in preparation for sheet asphalt surface, to be laid by the city plant, Maybury avenue, from the north curb line of Myrtle street to the south line of railroad, 26 feet wide, with 6-inch concrete foundation and Medina curb stone, contract price, $10,277.70, average per square yard of $2.35; John A. Mercier, for regrading, recurbing, concreting, etc., in preparation for sheet asphalt surfacing to be laid by the city plant, Medbury avenue, from the east line of Woodward avenue to the west curb line of John R. street, 26 feet wide, with 6-inch concrete foundation and Medina curb stone, contract price, $2,588.31, average per square yard, including inspection and sheet asphalt surfacing to be laid by the city plant, $2.51; Thomas E. Currie, for regrading, recurbing, concreting, etc., in preparation for resurfacing by city plant, Jos. Campau avenue, two roadways, each 30 feet wide, from the north line of Clinton street to the south curb of Mullett street; one roadway 30 feet wide, from north curb of Mullett street to south curb of Catherine street; also Mullett street, 25 feet wide, in front of Adelaide Campau Park, with 6-inch concrete foundation and Medina curb stone, contract price, $4,288.97, average per square yard, $2.42; contract for constructing vitrified crock lateral sewers has been awarded to John G. Affeld & Son for sewers Nos. 1856, 1874 and 1875; George W. Winterhalter for constructing sewer No. 1866; William Porath for constructing sewers Nos. 1876 and 1878.—J. J. Haarer, Commissioner of Public Works.

Hoboken, N. J.—Bids for the paving of the Bullsferry road, on the Union Hill side, from one end of the town to the other with specification blocks, have been received from John Murphy, $26,774.60; Aug. Thiel, $27,182.50; Hornung & Nolan, $28,284.50, and Charles Robertson.—James H. Londregan, City Clerk.

Long Branch, N. J.—The Consolidated Gas Company of New Jersey has been awarded a ten-year contract to light the city; the company agrees to furnish arc light for the first five years at $80 each, and for the next five years at $79 each; in all about 200 arc lights will be used; in addition, the company will place a cluster of ten lights in each of the ten pavilions along the ocean front, when erected.—Charles O. McFaddin, Mayor.

Montclair Heights, N. J.—Bids for the erection of the State Normal School have been received from structural iron workers, stone masons and brickwork, carpenter work and painting; the bidders were E. H. Ruxler & Co., Baker Smith & Co., Stevens & Co., New York Thorn-Filly Company, George Tobin, Ernest & Cook Company, Fred Gilgers.—Charles J. Baxter, Trenton, State Superintendent of Schools.

Orange, N. J.—The contract for furnishing a new hook and ladder truck has been awarded to the America and La France Fire Engine Company, at a cost of $2,750.

Trenton, N. J.—Ross & Boscorella have been awarded the contracts for the construction of sewers 279, St. Joe's avenue and 362, Logan avenue, and James McKernan the contract to build sewer 394, on McKinley avenue.

Bids have been received from Antonio De Lucia and T. J. McGovern for the construction of sewer 381, North Clinton avenue; from James McKernan, Antonio De Lucia and James Sunna, for sewer 386, Franklin street; from James McKernan, T. J. McGovern and Antonio De Lucia, for sewer 394, West State street and Colonial avenue; the bids were referred to the Sanitary Committee and City Engineer.

Bids were received for the paving of South Clinton avenue from Greenwood to Elmer streets, South Stockton street and Factory street with sheet asphalt as follows: Clinton avenue, Eastern Paving and Construction Company, five years' guarantee, $2.33 per square yard; ten years, $2.75; fifteen years, $3; South Stockton, Eastern Paving and Construction Company, five years, $2.15; ten years, $2.75; fifteen, $3; Factory street, five years, $2.33; ten years, $2.75; fifteen years, $3; the bids were referred to the Street Committee.

Albany, N. Y.—Bids for remodeling the Executive Chambers and installing a system of metal files have been received as follows: Feeney and Shehan, carpenter work, $2,000; Onstrand Metal Furniture Company, of Jamestown, carpenter work, metal work, $8,250; James C. Nolan, carpenter work only, $2,169; General Fireproofing Company, of Youngstown, O., metal work, $8,780; Van Dorn Ironworks, of Cleveland, O., metal work, $8,477; Art Metal Construction Company, of New York City, carpenter work, $1,400; metal work, $7,332.

Youngstown, O.—John Grady has been awarded contract for constructing sewers in Walnut, Bane and Market streets, at an estimated cost of $6,250.50.

Chester, Pa.—John Hanna & Sons have been awarded the contract for placing the conduits on Edgmont avenue above Twelfth street for the Delaware County Subway Company.

TRADE NOTES.

Cement.—The Monarch Portland Cement Co., Wichita, Kan., has closed contracts for machinery for the construction of its plant at Humbolt, Allen County, Kan. The engineers in charge, who have had long experience, claim that the plant will be the most modern and up to date that it is possible to construct. One of the valuable features of the plant will be the "Gaines" system of fuel economy, which it is estimated, even at the low price of natural gas, will save the stockholders from $150 to $200 a day.

Electric Trade.—Rumors that there has been a general decrease in the volume of the electric trade seem to be controverted by the following figures: From January 31 to September 14 the gross orders of the General Electric Company, Schenectady, N. Y., were $5,700,000 in excess of the corresponding period of 1906. Up to the middle of June, gross business showed a gain of $5,200,000 over the same period of last year. The last two months, therefore, have shown an actual gain of $500,000 over the same period of last year. Gross orders have not shown a dropping off as compared with last year, but they have failed to show the same ratio of increase.

Fire Alarm Box.—An invention of Alderman Michael J. McGowan, Jr., Newark, N. J., in the form of an alarm door designed to check the sending in of false alarms, is being tried by the Fire Department of Newark. The invention is of a simple character. It consists of a door easily adjustable to the signal box and kept locked, with the key in a convenient place, just as the mechanism of the outside of the box is operated. But the moment a person places the key in the lock and begins to turn it a bell on the inside is set ringing. For probably two seconds before the alarm door swings open this gong rings, and it keeps up its clamor for fifteen seconds. It is set at whatever length of time it is thought desirable to have the ringing continued.

Garbage Plant.—The C. O. Bartlett & Snow Company, Cleveland, O., has been exhibiting the garbage plant which is conducted for the City of Cleveland to a party of Harrisburg, Pa., officials, headed by S. S. Eberts, chairman, who were pleased at the results obtained. Alterations and improvements are now being installed at the Cleveland plant, so that the fuel equipment could not be seen. The City of Cleveland operates the plant, and it costs between $50,000 and $60,000 a year to dispose of garbage for the city, which has a population of over 500,000.

Generators.—The Fort Wayne Electric Works, Fort Wayne, Ind., in Bulletin No. 1098, describes their Type MPL belted generators, for light and power purposes. Bulletin No. 1100, of the same company, deals with small direct current motors, Type L.

Water Meters.—The Turbine Water Meter Company, Pittsburg, Pa., issues a booklet describing its turbine water meter, which is claimed to be an absolutely accurate machine for measuring the volume of water flowing through a pipe of a given size. As the name indicates, the measuring device is a wheel. This is made of hard rubber of about the same specific gravity as water, so that the wheel practically floats, being held in position by a brass pinion working between water-flooded ball-bearings at either end. It is stated that the meter acts accurately even on city or factory sewage. The body of the meter is made of red brass—a combination of metals in which copper predominates.

PERSONALS

AVERY, N. P., Mayor of Holyoke, Mass., some time ago vetoed an ordinance increasing his salary $500 per annum, on the ground that the city needed the money more than himself; but the Aldermen have passed the measure over his veto, and forced him to accept the increase, which dates from the first of this year.

BRANSFORD, JOHN S., Mayor of Salt Lake City, Utah, recently made an inspection of the city's water system in and about Utah Lake, with his son Wallace Bransford, A. S. Fowler, private secretary, Frank Mathews, City Land and Water Commissioner, and Councilman Thomas Hobday. The pumping plant at Utah Lake and also the flowing wells along the Jordan River were investigated. On this property the city has sunk 136 wells, and they all have had to be plugged up, as they drained all the other wells in the immediate vicinity.

CROKER, EDWARD F., Chief of the Fire Department of New York City, was the guest of honor at a dinner at the Farmington Country Club, near Hartford, Conn., recently, among the other guests being Louis Krug, Chief of the Hartford Fire Department; Fire Commissioner Horace B. Clark, of Hartford; Captain Rush, aid to Chief Croker, and ex-Governor McLean, of Connecticut.

HERING, DR. RUDOLPH, New York City, has been selected by the Passaic Valley Sewerage Commission to prepare plans for a trunk sewer to drain the Passaic Valley. He has also been selected by the Sewer Commission of Bridgeport, Conn., as Supervising and Consulting Engineer in revising the city's sewer system and the installation of a modern system, which is estimated to cost a quarter of a million dollars.

JOHNSON, JOHN, Mayor of Paterson, N. J., who succeeded Mayor William H. Belcher, who absconded as a defaulter, died recently, aged 55 years. During his short illness Bernard J. Roggiers, President of the Board of Aldermen, fulfilled the duties of the office, but upon his death William Berdan, President of the Board of Finance, was sworn in as Mayor.

KELLOGG, MARTIN, Street Commissioner of Norwalk, Conn., was instantly killed by an automobile recently, after alighting from a street car in South Norwalk.

KUICHLING, EMIL, New York City, has been chosen by W. J. Sherman, of Toledo, O., representing the City of Massillon, O., and Wynkoop Kiersted, St. Louis, Mo., representing the Massillon Water Supply Company, of Massillon, as the third member of the board of arbitration whose duty it will be to appraise the plant of the company, with a view to fixing a price on it in case the city decides to buy, and the board is now busily engaged on its task.

MCLAUGHLIN, JAMES F., Philadelphia, Pa., has been appointed Chief of the Electrical Bureau of the city, vice John Sager, who resigned on account of ill health.

PARRY, J. S., Fire Commissioner of San Francisco, Cal., who with Fire Chief Sullivan, a victim of the earthquake, planned the first system of high-pressure fire protection for the city, recently secured from Fire Commissioner John J. Lantry permission to make a thorough inspection of the high-pressure system now being installed in Manhattan, Brooklyn and Coney Island, at a cost of $5,500,000. San Francisco will at once expend $5,000,000, and ultimately $30,000,000 on its new system.

VAN TRUMP, JAMES C., has been appointed Superintendent of the Water Department of Wilmington, Del.

WAGNER, L. J., has been elected Superintendent of Water Works of Rome, Ga.

WARDWELL, WALTER C., Mayor of Cambridge, Mass., and George M. Clukas, Superintendent of Streets, recently visited Lowell to inspect the Decarie incinerator there, it being the intention of the University City to install an incinerating plant, and were the guests of Mayor Frederick W. Farnham and Charles J. Morse, Superintendent of Streets, who showed them the apparatus in operation. The visitors were also impressed with the management of the City Farm on account of its neatness and the quality of cattle and vegetables raised there.

WHINERY, SAMUEL, C.E., New York City, has been retained by the Finance Commission of Boston, Mass., to investigate and report on street pavements, street cleaning and refuse disposal.

YIELDING, F. B., member of the Police Commission of Birmingham, Ala., is the only member of the old board appointed by Governor Comer under the Legislative Act which abolished the former board, the other member being Mayor George B. Ward, chairman, who will be the official head of the Police Department at all times, and John B. Weakley.

PATENT CLAIMS

866,094. Water Clarification. Emile Vial, Brussels, Belgium; Louise Bourgoin Vial, Blanche Vial, and Gabrielle Vial, heiresses at law of said Emile Vial, deceased. Serial No. 213,721.

The improved apparatus for clarifying muddy water consisting of a tank substantially V shape in longitudinal section and having a flat plate or surface at its inlet end and at the top thereof over which the water flows in a thin horizontal stratum, a series of transverse partitions in the said tank, the upper edges of which are in line with the horizontal plate and the lower edges of which are above the inclined bottom of the tank so as to provide a free communication between the several compartments at the bottom of the tank, the outlet from the said tank for the clarified water being above the plane of the lower edge of the shortest partition, substantially as described.

866,244. Sewer-flushing Apparatus. Edward L. Wagner, Port Washington, N. Y. Serial No. 367,523.

In a sewer flushing apparatus, the combination of a flush tank, a pot set in the bottom thereof and extending below the same, a removable cover for said pot provided with a discharging leg extending downward and a bell extending upward, all made integrally with said cover, and a siphon having its discharge leg set in said bell.

866,346. Filtration Plant. Harold D. Elfreth, Philadelphia, Pa. Serial No. 360,037.

In a filtration plant, a sedimentation chamber, a connection therefrom to the water supply filtering chamber, one of the said chambers being entirely surrounded by the other, and the division walls of which are common to both chambers, chambers for the filtered water beneath said filtering chambers, and a distributing main in communication with the sedimentation chamber and above the filters in the filtering chambers.

866,452. Street-Sweeper. Amanuel O. Ford, Indian Springs, Tenn. Serial No. 228,142.

A street sweeper comprising, in combination, a frame; an axle carried by said frame at the rear end thereof; traction wheels rotatably mounted upon the ends of said axle; a veritably adjustable fork-shaped hanger secured to each side of said frame and comprising a pair of upper, laterally-spaced members each provided with a curved slot, and a lower stem portion provided with a bearing; set-screws carried by said frame on opposite sides thereof and projecting through the slotted members of the hangers, to retain the latter in adjusted position; a rotatable brush disposed in advance of said axle, said brush being provided with trunnions adapted to fit in said bearings; a gear rotatably mounted upon said axle adjacent one of said traction wheels and connected to the hub of the latter, so as to rotate therewith; a pinion longitudinally movable upon the adjacent brush trunnion; means for moving said pinion into and out of engagement with said gear; and means carried by said frame for discharging the dirt swept up by said brush during its rotation.

866,510. Smoke-Preventer. Edward B. Parkhurst, Woburn, Mass. Serial No. 311,635.

In a furnace provided with fuel openings, doors for said openings, an air inlet and a steam inlet, the combination of a damper in the air inlet, a valve in the steam inlet provided with a rotatable valve spindle, a gear on the valve spindle, a rack in engagement with the said gear, a slotted connection between the rack and the damper, and an arm on the said valve spindle for engagement with one of the said doors.

INCORPORATIONS

Alcohol Light, Heat and Power Company, New York City; to manufacture lamps, stoves, heaters, etc.; capital, $20,000. Incorporators: Francis Ledek, Bellmore, L. I.; William Kersting, New Durham, N. J.; Burchard Thoens, 111 West 102d street, New York.

Bataille Pump and Machine Company, East Orange, N. J.; to manufacture pumps, machines, etc.; Agent, John J. Bataille; capital stock, $100,000. Incorporators: John J. Bataille, R. Gertrude Bataille and Eugene F. Bataille.

Citizens' Lighting and Heating Company, Toledo, O.; to replace the Central Heating and Lighting Company; capital, $200,000. Incorporators: J. W. McMahon, G. W. Kinney and Wm. S. Walbridge.

Coast Rendering Company, Asbury Park, N. J.;removal and disposition of garbage and city street and house refuse; capital, $50,000. Incorporators: Christian Brehm and John H. Sculthorpe, 149 Garfield avenue, Long Branch, N. J.; Arthur Redfern, Asbury Park, N. J.

Commonwealth Electric Company and Chicago Edison Company, Chicago, Ill.; consolidated under name of Commonwealth Edison Company; capital stock, $30,000,000.

Elkins Power Company, Elkins, W. Va.; to operate a street railroad in Randolph, Barbour and Taylor counties, and conduct other enterprises; capital, $75,000. Incorporators: Senator Henry C. Davis, Stephen B. Elkins, W. I. Hall and others.

Elmer Gas Company, Elmer, N. J.; to operate gas works in the borough of Elmer, N. J.; capital, $10,000. Incorporators: E. C. Harris, J. Harry Kandle, M. F. Tiley, Elmer, N. J.

Horsford Power Company, Hickory, N. C.; to develop electric power from a plant on the Catawba river; capital, $50,000. Incorporators: A. A. Shuford, K. L. Riddle, B. G. Cline and others.

North End Improvement Association, Evanston, Ill. Incorporators: Frank Y. Morris, Guy A. Malcolm and R. Clarence Brown.

Platteville Gas Company, Platteville, Wis.; capital, $50,000. Incorporators: L. Hendley, P. R. Crahden and others.

Spring Valley Gas Company, Spring Valley, Ill.; to manufacture and dispose of gas.

Star Contracting Company, Glens Falls, N. Y.; general contractors; capital, $10,000. Incorporators: George F. Cook, William A. Sherman, Gertrude H. Sherman, Elizabeth M. Cook, Glens Falls, N. Y.

Williamstown Gas Company, Monroe, N. J.; to operate gas works in Monroe, N. J.; capital, $10,000. Incorporators: Eli R. Marsh, Albert Eldridge, Peter Peterson, Williamstown, N. J.

Wright Township Oil and Gas Company, Jasonville, Ind.; capital, $25,000. Directors: J. W. Littlejohn, John Arthur, Francis M. Busenburg, Curtis Harris, Charles Davis, W. S. Hicks and Joseph C. Harris.

The Municipal Journal and Engineer should always be on your library table as a constant current reference to all Municipal work.

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Proposals

WATER WORKS

Tucson, Ariz.

Sealed bids will be received at the office of the City Recorder of the City of Tucson, Pima county, Arizona Territory, until 8 o'clock p. m., of the 4th day of November, 1907, for the furnishing of all material and labor for the construction of a system of water works for said city, according to the plans and specifications now on file in the office of said City Recorder in the City Hall in said city of Tucson. All bids shall be made with the proviso in said bid contained that the bidder, if successful, will accept his pay for the work to be done, and material furnished, in fifty-year bonds of the city of Tucson, at par, said bonds to bear interest at the rate of 4½ per cent. per annum, interest payable semi-annually. A certified check in the sum of ten thousand ($10,000.00) dollars, payable to the city of Tucson, must accompany all bids. The check of the successful bidder to be forfeited to the city of Tucson in the event said successful bidder shall fail to enter into a contract with said city for the construction of said system of water works, and furnish a good and sufficient bond for the construction of same, said bond to be approved by the Mayor and Common Council of the city of Tucson. The Mayor and Common Council of the city of Tucson reserve the right to reject any and all bids. A certified copy of the plans and specifications of said proposed water system will be sent to prospective bidders upon application to the City Recorder of said city of Tucson, accompanied by ten ($10.00) dollars.

For further information, address "Superintendent of Water Works" or "City Recorder," Tucson, Pima County, Arizona Territory.

CHAS. F. SLACK,
Mayor.
FRANK S. TREAT,
City Recorder.

ASPHALT PLANT

Notice to Contractors

Sealed tenders addressed to James Davidson, Chairman of the Board of Water Committee, will be received by registered post only at the office of the City Engineer, up to 5 p. m. Wednesday, October 16, 1907, endorsed "Tender for an Asphalt and Bituminous Paving Plant," for the supply and erection of same on a site to be provided by the Corporation.

Specifications, form of tender and full particulars may be obtained at the City Engineer's office, City Hall.

The Corporation does not bind itself to accept the lowest or any tender.

NEWTON J. KER,
City Engineer.

Ottawa, Can., Sept. 16, 1907.

WATER FILTERS

Atlanta, Ga., Sept. 7, 1907.

Sealed proposals will be received by the Board of Water Commissioners, Atlanta, Ga., until 4:00 o'clock p. m. Wednesday, October 23, 1907, for furnishing and erecting complete a sectional washing pressure filter plant for the City of Atlanta, Ga. Said filter plant to consist of eight (8) units, each unit 8 feet in diameter and 20 feet long. Said filter plant to have a minimum guaranteed daily delivering capacity of 4,000,000 gallons when one (1) unit is out of service during washing period. Guaranteed capacity of proposed filter plant to be tested before accepted. Capacity to be timed and delivery measured by direct discharge into clear water basin.

Said filter plant to be erected at water works pumping station No. 2, on Southern Belt Railroad, about three (3) miles from the city.

Plans and specifications can be had on application to General Manager, Atlanta Water Works, Atlanta, Ga.

The Board reserves the right to reject any or all bids.

BOARD OF WATER COMMISSIONERS,
PARK WOODWARD,
General Manager.

PUMP HOUSE, ICE PLANT, ETC.

Fort Caswell, N. C., Sept. 7, 1907.

Sealed proposals, in triplicate, will be received until 11 a. m. October 9, 1907, for building pump house, ice plant and cold storage here. U. S. reserves the right to reject or accept any or all proposals. Information furnished on application. Envelopes containing proposals will be indorsed, "Proposals for Ice Plant, etc.," addressed

L. CRAVENS, Q. M.

WANTS

DRAFTSMEN—Highest possible salaries for men experienced in any line of drafting; offices in 12 cities; any location desired; list of openings free. Hapgoods, 305 B'way, N. Y.

CONSTRUCTING ENGINEER desires position of some importance in construction of public works, railroads, etc.; has resided several years in the tropics; speaks Spanish; location desired, Southern States, Mexico, Central or South America. Address No. 514. Municipal Journal and Engineer.

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